REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	August 1999	Final Report (07-98 to 07-99)

4. TITLE AND SUBTITLE
An Analysis of Saturday Family Practice Clinic Utilization at Reynolds Army Community Hospital, Fort Sill, Oklahoma.

5. FUNDING NUMBERS

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8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
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Fort Sam Houston, Texas 78234-6135

10. SPONSORING / MONITORING AGENCY REPORT NUMBER
24-99

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution is Unlimited

13. ABSTRACT *(Maximum 200 words)*

The objective of this study was to establish a patient profile using descriptive statistics that reflects the type of patient who uses the Saturday Family Practice Clinic, and to determine if this profile differs from those who use the Monday-Friday FPC. The study revealed that users of the Saturday FPC were predominantly female active duty dependents age 17-50 (40.4%) and children between the ages of one and ten (27.3%). Male children age 1-10 were more likely to use the Saturday FPC than the M-F FPC ($X2=5.9$; $df=1$; $p<.015$). Sixty-six percent were spouses and children of active duty service members while only 9% were spouses and children of retired service members ($X2=26.7$; $df=3$; $p<.0001$). Almost 8% of Saturday FPC users were assigned to the MEDDAC. Of 166 military units, 69.5% used the Saturday FPC on at least one occasion. Military rank did not significantly influence whether or not a patient used the Saturday FPC over the M-F FPC. Patients who reside on the military installation did not use the Saturday FPC significantly more than the M-F FPC, however 17.4% of these residents were not enrolled in TRICARE. Children under the age of one who were not enrolled were more likely to use the Saturday FPC ($X2=4.5$; $df=1$; $p<.035$), patients age 17-50 who were not enrolled were more likely to use the Saturday FPC ($X2=11.7$; $df=3$; $p<.008$), patients age 51-64 who were enrolled to TRICARE Prime were more likely to use the M-F FPC ($X2=6.9$; $df=2$; $p<.031$), and patients 65+ who were authorized direct care only on a space available basis were more likely to use the Saturday FPC ($X2=24.8$; $df=2$; $p<.0001$). Additionally, 59% of direct care only users who used the Saturday FPC were age 65+ and not enrolled to TRICARE Senior Prime. Sixty percent of beneficiaries gained access through either the Nurse Care Center or the emergency room. Over five months, 253 patient visits (equivalent to 2.3% of ERs average monthly workload) were channeled into the Saturday FPC, but non-emergent use of the ER remained relatively constant. The leading diagnoses made were for acute urinary tract infection (8.4%), otitis media (6.8%), acute pharyngitis (5.6%), unspecified viral infections (4.2%), and nonspecific dermatitis (4.2%).

14. SUBJECT TERMS	15. NUMBER OF PAGES
Saturday Clinic Utilization, Primary Care Initiative, Use of an After-Hours Clinic.	90
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

An Analysis of Saturday Family Practice Clinic Utilization at Reynolds Army Community Hospital, Fort Sill, Oklahoma

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March 16, 1999

Acknowledgements

"This is not the end. It is not even the beginning of the end. It is perhaps, the end of the beginning."

- Sir Winston Churchill's statement at the victory of El Alamein in Africa, 1942

Over the past two years, the Army- Baylor program has been challenging and exciting. More importantly it has tested my roles as father, husband, commissioned officer, and hospital administrator along with my ability to meet the needs of a demanding future with success.

This success could not have been realized without the significant contributions of a few key individuals. First and foremost, a special thanks to my wife Heather and daughter Victoria for sticking by my side and toughing out the year in San Antonio; a year filled with late nights, missed dinners, and lost weekends. Your perseverance and dedication made the difference.

Second, I would like to thank my extended family, Colonel (Ret) Jake and Patricia Dye for their support. They always seem to provide the right outlet at the right time to keep our lives bright and exciting.

Third, I would like to thank Colonel Lee Briggs and Dr. Dave Mangelsdorff for their mentorship and academic guidance. Thanks also to Brian Wallace and Bill Walker for assisting me with developing the ad-hoc reports used in this study. Their expertise, patience, and willingness to help others are representative of the excellent staff at Reynolds Army Community Hospital and the AMEDD Center and School.

Finally, I would like to thank my mother. Through example she taught me to work hard, and to play hard, but to always...always...get the job done. A quality not found a lot these days, but one worth embracing and passing on to others.

Abstract

On June 1, 1998, Reynolds Army Community Hospital (RACH) began offering primary care services through same day appointments on Saturday. This initiative was developed to improve access to the primary care clinic and offer our beneficiary population the type of clinic hours often available within the civilian health care industry.

The primary objective of this study was to establish a patient profile using descriptive statistics that reflects the type of patient who uses the Saturday Family Practice Clinic (FPC). The secondary objective was to determine if this patient profile differs from that of patients who use the Monday-Friday FPC (M-F FPC).

The study revealed that users of the Saturday FPC were predominantly female active duty dependents age 17-50 (40.4%) and children between the ages of one and ten (27.3%). Male children age 1-10 were more likely to use the Saturday FPC than the M-F FPC (X^2=5.9; df = 1; p<.015). Sixty-six percent were spouses and children of active duty service members while only 9% were spouses and children of retired service members (X^2=26.7; df = 3; p<.0001). Almost 8% of Saturday FPC users were assigned to RACH. Of the remaining 166 military units, 69.5% used the Saturday FPC on at least one occasion. Military rank did not significantly influence whether or not a patient used the Saturday FPC over the M-F FPC. Patients who reside on the military installation did not use the Saturday FPC significantly more than the M-F FPC, however 17.4% of these residents were not enrolled in TRICARE. Children under the age of one who were not enrolled were more likely to use the Saturday FPC (X^2=4.5; df = 1; p<035), patients age 17-50 who were not enrolled were more likely to use the Saturday FPC (X^2=11.7; df = 3; p<.008), patients age 51-64 who were enrolled to TRICARE Prime were more likely to use the M-F FPC (X^2=6.9; df = 2; p<031), and patients 65+ who were authorized direct care only on a space available basis were more likely to use the Saturday FPC (X^2=24.8; df = 2; p<.0001). Additionally, 59% of direct care only users who used the Saturday FPC were age 65+ and not enrolled to TRICARE Senior Prime. Sixty percent of beneficiaries gained access through either the Nurse Care Center or the emergency room (ER). Over five months, 253 patient visits (equivalent to 2.3% of ERs average monthly workload) were channeled into the Saturday FPC, but non-emergent use of the ER remained relatively constant. Almost 10% were not assigned to a primary care manager, and the leading diagnoses made were for acute urinary tract infection (8.4%), otitis media (6.8%), acute pharyngitis (5.6%), unspecified viral infections (4.2%), and nonspecific dermatitis (4.2%).

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Introduction

The advent of managed care in the Military Health System (MHS) and implementation of TRICARE at Reynolds Army Community Hospital (RACH) in November 1995 formed the basis of a reengineering initiative aimed to improve the process of providing primary health care services to an enrolled beneficiary population. This initiative, known as the Primary Care Initiative (PCI), began as a process action team on August 12, 1996, and continues today as a continuous quality improvement process that has resulted in several organizational realignment actions.

The PCI resulted in combining the disciplines of Internal Medicine (IM) and Pediatrics (PEDS) with Family Practice Clinic/ Team 1 (FP1) and Family Practice Clinic/ Team 2 (FP2) under the umbrella of a single department known as the Department of Primary Care and Community Medicine (DPCCM). The intent of this reorganization, effective April 1, 1998, was to improve access to primary care by expanding the number of Primary Care Managers (PCMs) and thus the portals of entry to primary care throughout the hospital. In this fashion, internists and pediatricians would function as primary care physicians for outpatient services in addition to their roles as specialty consultants and inpatient providers. This created a primary care setting where the promotion of wellness and prevention of illness could take place in addition to the case management of high acuity patients.

Since April 1998, the Clinical Support Division (CSD) has been cross-leveling PCM unit assignments by assigning enrolled populations to IM and PEDS physicians (S. Mizelle, personal communication, August 10, 1998). For example, in May 1998, the PCM unit assignment for the

47th Combat Support Battalion was converted to IM allowing for 881 enrollment slots to be freed under FP1. Additional units were moved in September and October 1998 to IM and PEDS that freed an additional 419 enrollment slots under FP2. Actions such as this via the PCI will become increasingly important to RACH as the MHS moves to Enrollment Based Capitation (EBC) and funding is provided on a prospective basis based on the number of enrolled beneficiaries at each Medical Treatment Facility (MTF).

On June 1, 1998, the DPCCM extended the operating hours of FP1 and FP2 to offer Saturday appointments from 9:00 a.m. until 3:00 p.m. Although offering extended hours until 7:00 p.m. during the week began in January 1997 and was modified to 8:00 p.m. in May 1998, opening the Family Practice Clinics (FPCs) on Saturdays was the first attempt to offer patients a weekend service for access to same day appointments.

Conditions which prompted the study. In February 1997, the Office of Assistant Secretary of Defense for Health Affairs mandated the MHS to extend operating hours for primary care into weekday evenings and weekends. This policy was developed to improve access to primary care clinic services throughout the MHS and offer our beneficiary population the type of clinic hours often available within the civilian health care industry (D. Ellis, personal communication, September 30, 1998). This required RACH to extend operating hours beyond the 7:30 a.m. through 4:30 p.m. duty day to accommodate working parents, caretakers, and other beneficiaries. While it was logical to assume that extending hours to include Saturdays would afford patients additional opportunities to seek primary care, no prospective guidance was provided to determine how many or what type of patients would likely use the extended hours services.

Currently, there are 40 primary care appointments reserved at the FPCs (i.e., 20 appointments per FPC with one provider staffing each FPC) for each Saturday of the month from 9:00 a.m. until 3:00 p.m. The DPCCM and CSD have been monitoring the use of the FPCs during Saturdays since June 1, 1998, but this has largely been limited to simply accounting for the actual number of patients seen in relation to the total number of appointments reserved. Data representing the number of appointment cancellations and patients who failed to keep an appointment are also available and lend some insight with respect to the efficient use of resources. For example, of 160 available appointments only 82 were made by patients during the month of June 1998. There were no patients who walked in for an appointment, but there were two patients who failed to keep their scheduled appointment and one who cancelled their appointment. Thus, we are able to address the "How Many" aspect of FPC utilization on Saturdays but there is no evidence to suggest we are tracking or have a method to track the "Type" of patient who is using the FPC on Saturdays. Additionally, there is no evidence to suggest that RACH as an organization has effectively differentiated the Saturday FPC user population from those who use the FPC during normal business hours (i.e., from 7:30 a.m. to 4:30 p.m., Monday through Friday). This is of particular interest since MHS beneficiaries are not accustomed to accessing the MTF on weekends by means other than presenting to the emergency room (ER). Thus, understanding the demographics of patient's who use primary care services on Saturdays may provide valuable insight with respect to the potential impact on other hospital services such as the ER.

Approximately 60-80 patients per month elect to be seen and are treated by ER physicians for conditions classified as non-emergent and whose care could best be provided through their PCM. Additionally, there are approximately 215 patients per month who present to

the ER after normal duty hours, are triaged by medics and nursing personnel, and are referred to their PCM after chart review and signature by the ER physician. This represents 10% of the average monthly number of ER visits since June 1998 and consumes resources that could, perhaps, be better utilized in a primary care environment such as that found within the Saturday FPC.

Utilization of the FPC on Saturdays is of concern to the command for several reasons. For example, at the onset of the PCI it was projected in a letter to the National Federation of Federal Employees, Local Union 273, that the number of emergency room patients should decrease an average of 40% when access to the appropriate level of care in a clinic setting is provided with the proposed Saturday clinic hours. This implies that non-emergent patients, or patients categorized by the emergency room as having a medical condition that does not require intervention by a physician to occur that day, will use the Saturday clinic rather than the emergency room. This is an assertion that can not be adequately validated until we understand what type of patient, in fact, is using the FPC on Saturdays and what factors might describe or influence their use of this service.

Additionally, understanding the type of patient who uses the FPC on Saturdays lends insight with respect to who might not be using the service. A better understanding of the non-user population may enable providers and managers to channel patient education and marketing programs to target the appropriate audience.

Question Statement. The primary question this study attempts to answer is what type of patient uses the Saturday FPC? A secondary or follow-up question is does this patient profile differ from that of the patient who uses the Monday-Friday FPC (M-F FPC)? The answers to these specific questions can assist the senior leadership of RACH in making appropriate and cost

effective decisions with respect to continued operations of the Saturday FPC or if additional business practices (or modification of existing practices) should be implemented to better target the primary care needs of our beneficiary population.

Literature Review. Health care literature was reviewed from the perspective of a primary care based model of health care delivery. This included a review of multispecialty clinics and multispecialty group practices and their roles in providing primary health care services. Additionally, studies reflecting the use of after-hours and walk-in clinics were reviewed to provide insight into what type of patients might likely use an extended hours primary care clinic such as that offered by RACH via the Saturday FPC.

Rapid and profound changes in the organization and financing of health care in the United States have led hospitals and other health care organizations to adopt primary care based systems of health care delivery. Primary care is defined by the Institute of Medicine as "the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community" (Donaldson & Vanselow, 1996, p. 114). According to a 1994 Health Maintenance Organization (HMO) performance survey conducted by Group Health Association of America (GHAA), medical care rendered by clinicians in the specialties of family practice, internal medicine, and pediatrics was considered to be primary care and furthermore classified these physicians as Primary Care Providers (PCPs). A number of other health plans that capitate primary care or use PCPs as case managers also choose to include obstetrics and gynecology (OB/GYN) specialty physicians as PCPs since they are often the only physician a young woman of childbearing age sees for many years (Kongstvedt, 1996). However, since almost 71% of HMOs allow self referral to OB/GYN, most

organizations define OB/GYN as a specialty service and make special arrangements for routine diagnostic procedures such as pap smears and mammograms, while the majority of OB services still require coordination through the PCP (GHAA, 1994). Similarly, OB/GYN physicians and services at RACH are organized as a specialty service under the Department of Specialty Care (DOSC), while primary care physicians are organized under the DPCCM and are operationally defined as family practice physicians, internists, and pediatricians.

It is believed these primary care based systems will improve access to care, while producing equivalent or higher quality outcomes in a more cost-efficient manner. Stewart, Grumbach, Osmond, Vranizan, Komaromy, & Bindman (1997) suggest that access is improved if the regular place for care fits a primary care model where the care is comprehensive, continuous, coordinated between generalist and specialist physicians, and readily available to the patient. Following adjustment for sociodemographics and need for care, this study found that primary care contributed independently to improved self-rated access for patients who had health insurance, a regular place for care, and a regular provider.

O'Connor, Solberg, & Baird (1998) propose use of the Enhanced Primary Care Model, which combines clinical tools with quality improvement methods to improve health outcomes. These tools include the use of clinical guidelines, the concept of team care/ extended providers, triage, telephone outreach programs, patient self-monitoring technology, and efficient use of specialty expertise with respect to referrals and consultation. Another study that supports the use of primary care to improve clinical outcomes is addressed by Baker, Stevens, & Brook (1994). This study revealed that patients who denied having a regular source of care received 42% of their care in an emergency department on an episodic basis with little to no follow-up care. Additionally, the majority of these patients presented with chronic illnesses rather than acute

illnesses. The study concludes that individuals with chronic illnesses are likely to benefit by having a provider who is familiar with their problems, and who is located in a setting where care can be provided more efficiently and at a lower cost such as a primary care setting.

Forrest & Starfield (1996) examined the relationship between first-contact care, an essential feature of primary care, and expenditures for frequent ambulatory episodes of care in a nationally representative sample of 20,282 episodes spanning 24 preventive and acute illness conditions. This study reported episodes that began with visits to an individual's primary care physician, as opposed to other sources of care, were associated with reductions in expenditures of 53% overall ($63 v. $134, $p<.001$), 62% for acute illnesses ($64 v. $164, $p<.001$), and 20% for preventive care ($64 v. $80, $p<.001$).

These studies support a primary care model of health care delivery from the perspectives of access, quality, and cost respectively. A specific aspect of the primary care model that RACH is particularly interested in, and was a key premise to the PCI, is the deployment of specialists as PCMs within the context of a multispecialty clinic.

According to a study by Strelnick, Bateman, Jones, Shepherd, Massad, Townsend, Grossman, Korin, & Schorow (1988), the "Multispecialty Clinic" concept developed as an offshoot of the multispecialty group practice models of the early 1980's that were formed to address changes in health policy brought about by managed care and issues such as specialty and geographic maldistribution. Establishing multispecialty group practices offered specialty providers (i.e., internists, pediatricians, OB/GYN physicians, general surgeons, ophthalmologists, and otolaryngologists) many benefits such as better overall office management, centralized billing and collection procedures, group purchasing discounts, reduced overhead expenses, and the ability to better respond to departing owners if the provider was

previously involved in a business arrangement other than a sole proprietorship (Tinsley, 1994). Throughout the 1990's the number of physicians organized in multispecialty group practices has grown. It is uncertain, however, if this increase is due to economic considerations such as trying to achieve economies of scale and economies of scope, or rather the advantage a multispecialty group may have in its ability to more efficiently coordinate the process of primary care in a managed care environment. In this context, economies of scale refers to how practice costs or productivity are affected as the number of physicians in the group is changed, while economies of scope refers to the extent of physician specialization within the group practice (Jacobs, 1991). In a study concerning the economic underpinnings of the multispecialty group practice, Pauly indicates a key advantage is its ability to control referral costs based upon the number and types of specialists within the group practice (Pauly, 1996). However, the most important advantage may lie within its ability to manage the primary care needs of a defined patient population if it is to receive capitated payments under a managed care plan. According to Pauly, this will require the multispecialty group practice to either employ sufficient numbers of primary care providers such as family practice physicians or require physicians traditionally classified as specialists (i.e., internists and pediatricians) to fulfill primary care roles in addition to their role as specialist.

The emphasis for physicians to subspecialize throughout the 1960's and 1970's in areas such as cardiology, gastroenterology, nephrology, and oncology would leave these internal medicine subspecialists ill-prepared for the competitive pressures associated with the managed care environment of the future (Kovner, 1995). This occurred primarily as a result of rigid compartmentalization, by hospitals and academic medical centers, and segregation of subspecialty sections due to the widespread assumption that both specialists and subspecialists

were to provide consultative rather than primary care services (Schafer, 1995). A study of graduate primary care training at Montefiore Medical Center examined a collaborative alternative for family practice, internal medicine, and pediatric physicians. Here, three specialty-oriented faculties were formed into a single multidisciplinary faculty with primary responsibility to the Residency Program in Social Medicine and secondary responsibility to the subordinate departments of family practice, internal medicine, and pediatrics. Over a three year period, the residency program produced 84 internists, 61 pediatricians, and 73 family physicians. Of this combined population, 78% became board certified in their specialty, 71% engaged in primary care group practices, and 73% graduated training to practice on interdisciplinary teams (Strelnick et al., 1988). Schafer (1995) explores the deployment of academic specialists in the emerging era of primary care and also proposes a viable solution that reorganizes narrowly focused and fragmented specialty clinics into multispecialty group practices. In his review of the literature, he highlights that academic medical centers are still dominated by specialists and subspecialists who provide liberal consultations on patients previously evaluated by others and that this practice has significantly contributed to the "physician induced demand" for physician services among both primary and specialty disciplines (Fogelman, 1994 & Schroeder 1993). Interestingly, this is the type of physician behavior that today's staff model health maintenance organizations (HMOs) seek to avoid due to the added cost of outside consultations, and additional tests/ procedures typically ordered by the specialist. Staff model HMOs control this by building a comprehensive staff of physicians who can refer and consult within the group. A well known example of a staff model HMO is Group Health Cooperative of Puget Sound in Seattle, WA. Physicians in staff model HMOs such as this typically practice in one or more centralized ambulatory care facilities that are equipped with ancillary support services similar to

that found in hospitals that support outpatient clinics (Kongstvedt, 1996). Interestingly, this model is very similar to that which is found within the MHS and implies that efficiencies can be achieved via a multispecialty group practice or multispecialty clinic if, for example, it is properly organized with the right mix of providers.

While Schafer (1995) agrees with this premise, he adds that specialists can deliver comprehensive care to patients whose predominant medical problems lie within their areas of expertise if oriented in a multispecialty group practice/ clinic setting that provides immediate access to specialists in other fields. This is an important observation in that it is here where the use of informal consultations can take place within the confines of the group practice/ clinic for improved continuity of care without the added expense of consulting externally to the group.

Finally, but most importantly, Schafer (1995) recognizes that forming into multispecialty groups and adopting a primary care mode of practice must be accompanied by improved communication between and among specialty providers. He also indicates that specialists are more likely to utilize physician extenders such as physician assistants and nurse practitioners than their generalist colleagues. This implies that physician extenders should also be considered when developing a multispecialty group/ clinic practice, particularly when internal medicine physicians are key players within the group. While this aspect of staffing should be evaluated for its impact on providing cost-effective primary care, it should not be based on the parochial preferences or acceptance of any single group of specialists within the multispecialty group practice.

It appears the multispecialty group practice offers patients the convenience of "One-Stop-Shopping" with respect to offering both primary care services and consultation/ referral services within a single setting. But what type of patient can be characterized as using these outpatient

services? This is a frequently asked question by both health care administrators and specialty providers who are focusing their efforts to meet the demand for providing primary care services within a multispecialty clinic setting. According to a nationwide survey of 1000 health care consumers conducted by Professional Research Consultants, Inc., the majority (50.7%) of former outpatients were adult females, followed by adult males at 35.1%, while the remaining 14.2% were children under the age of eighteen. Approximately 33% of patient visits involved outpatient surgical procedures, 45% were for lab tests, while the remaining 22% were for radiology services (Powills, 1987). According to this survey, individuals most likely to have received outpatient care are between the ages of 25 and 44, earn $40,000 or more annually, have one or more children under age 18 living at home, and are employed in a health care environment. Interestingly, 85% received this care in a hospital setting, while only 10% went to physicians' offices. The remaining 5% received their care at freestanding walk-in clinics.

Although the specific mission and intent of a walk-in-clinic varies from that of a multispecialty clinic, there are overriding issues that suggest users of a walk-in clinic may be potential customers of an appointment driven multispecialty clinic if their access needs can be met. For example, walk-in clinics typically have convenient locations and offer extended hours to include weekends. Conversely, these clinics do not require appointments and the physician staff usually has little affiliation with the local community hospital. Follow up care, if any, takes place at the clinic and there is no standard mechanism for informing the primary care provider (if there is one) about the visit (Kongstvedt, 1996). Rizos, Anglin, Grava-Gubins, & Lazar (1990) surveyed 321 patients who reported having a regular physician yet attended a walk-in clinic. Survey participants were asked their reason for attending the clinic, their perception of the urgency of their problem, their choices as alternatives to walk-in clinics, and their satisfaction/

concerns with the type of care provided at the clinic. The three most common reasons for attending the clinic were convenient location (33%), inability to see their regular physician soon enough (16%), and the fact that no appointment was required (13%). Eighty percent of the survey respondents felt that they needed medical attention within 24 hours after the onset of their medical problem. A striking 83% of patients indicated they would have sought medical attention at either another walk-in clinic, from their regular physician, or at an emergency department had the clinic been closed. Interestingly, only 36% indicated that their regular physician worked evening hours, while only 18% indicated their provider worked on weekends (Rizos et al., 1990). The findings of this particular study suggest that a convenient location coupled with extended hours can play a key role in patients' health care seeking behavior with respect to using a walk-in clinic rather than a regular family physician. This being particularly true if the physician functions in a traditional office setting that can be accessed only through appointment during conventional business hours.

A distinct style or variant of the free-standing walk-in clinic, known as an after-hours clinic, has evolved since the early 1990's in Canada and closely resembles the structure and function of the multispecialty integrated Saturday FPC at RACH. The Canadian after-hours clinic, like the Saturday FPC, is designed to supplement rather than replace the primary care giver. Thus, hours of operation are designed to extend rather than conflict with regular family physicians' office hours. These after-hours clinics are primarily staffed by family practice physicians who focus on providing primary health care services (with a minority representation from specialists) within existing offices in the area and often with significant links to the local community hospital. Interestingly, these links form with the Family Medicine Department of the local community hospital just as RACH's Saturday FPC is organizationally affiliated with and

falls under the oversight of the DPCCM. Finally, a parallel is drawn with respect to continuity of care, in that follow-up care resulting from use of the after-hours clinic takes place with the established primary care giver, and it is standard practice to notify the primary care giver of the after-hours clinic visit (Rachlis, 1993).

Both studies above imply that such clinics are an attractive alternative for patients with medical concerns that they believe require prompt attention. Meditz, Manberg, & Rosner (1992) substantiate these findings in a study that explores the need for a primary care medical clinic that operates during nontraditional times such as nights and weekends. The study was conducted at Queens Hospital in New York City where a walk-in clinic was located adjacent to the emergency room in which non-emergent cases were triaged. Interestingly, this organizational structure is very similar to that which was in place at RACH prior to 1996 when an acute minor illness clinic was supporting overflow patients from the emergency room. The study incorporated a survey instrument whereby during a one week period all patients triaged from the emergency room to the walk-in clinic were asked to complete a questionnaire prior to receiving medical treatment. Ironically the survey times chosen are almost identical to the extended hours offered at RACH (i.e., from 4 pm to 8 pm on weekday evenings and from 8 am to 12 pm on Saturdays). The survey instrument inquired about the medical problem, prior use of the walk-in clinic, the patients knowledge and use of the general medical clinic that operates during normal business hours, the patient's primary source of medical care, and the patient's desire for an evening or weekend primary care clinic. Of the 54 survey respondents, 27 were male. The mean age for males and females combined was 40. The top five medical complaints were associated with upper respiratory problems (13%), joint or back pain (10%), medication refill (7%), skin rash (4%), and gastrointestional problems (4%). The top six reasons why patients came to the

emergency room at that particular time were because they were off from work (20%), transportation was available (11%), out of medicine (7%), onset of illness had gotten progressively worse (7%), a babysitter was available (2%), and the patient was off from school (2%). The top five reasons why these patients chose not to attend the regular hours primary care clinic were because the waiting time was too long (11%), patient could not get off from work (8%), appointment time was inconvenient (5%), patient could not get a same day appointment (4%), and due to difficulties in obtaining transportation (3%) (Meditz et al., 1992).

Interestingly, 63% of the survey respondents had used the walk-in clinic before but only 56% received a follow-up appointment with the regular hours primary care clinic. Probably the most interesting finding was that 69% were aware that Queens Hospital had a regular hours primary care clinic but many had no understanding of how a general medical clinic differs from a walk-in clinic. Ninety-four percent of the respondents indicated that having a regular physician was important to them even though the walk-in clinic did not always provide the same provider on a regular basis and that the continuity of care with respect to follow-up appointments was at best mediocre. Probably the most significant finding, however, was that 87% of those surveyed said they would attend the primary care medical clinic if it offered evening or weekend hours. Finally, survey respondents were asked to rank order the most convenient time for a clinic appointment. The most frequently requested times in descending order were Saturday morning, Saturday afternoon, and Sunday morning. The most commonly requested weekday evenings were Monday, Wednesday, and Friday respectively (Meditz et al., 1992).

Purpose. The primary objective of this study was to establish a patient profile using descriptive statistics that reflects the type of patient who uses the Saturday FPC. The study was based on analyzing ten independent variables: Age Category, Gender, Beneficiary Category,

Military Unit Assignment, Military Rank, Zip Code, Enrollment Status, Referral Source, PCM Assignment, and Diagnosis. The secondary objective was to determine if this patient profile differs from that of patients who use the M-F FPC?

The no difference model or null hypothesis (H_o) was: Saturday FPC utilization, when compared to M-F FPC utilization, is not influenced by or can not be attributed to differences in Age Category, Gender, Beneficiary Category, Military Unit Assignment, Military Rank, Zip Code, Enrollment Status, Referral Source, PCM Assignment, and Diagnosis.

The alternate hypothesis (H_a) was: Saturday FPC utilization, when compared to M-F FPC utilization, is influenced by or can be attributed to differences in Age Category, Gender, Beneficiary Category, Military Unit Assignment, Military Rank, Zip Code, Enrollment Status, Referral Source, PCM Assignment, and Diagnosis.

Methods and Procedures

Theoretical Framework. In this analysis, the researcher employed the Expanded Behavioral Model of health services utilization developed by Aday, Andersen, and Fleming (1980) to provide a conceptual framework for organizing the discussion of factors or variables that may play a role in patients' use of the FPC on Saturdays. Two aspects of the model, characteristics of the health delivery system and characteristics of the population-at-risk, are used in determining utilization of health services. The principle indicator chosen by the researcher to operationalize availability as a characteristic of the health delivery system was the distribution of patient visits by day (i.e., visits made on Saturday as opposed to visits made during Monday through Friday) in the FPC, while the indicators chosen to operationalize characteristics of the population-at-risk are separated into three categories of independent variables. This aspect of the model proposes that health service utilization is the consequence of three types of factors or

variables that describe characteristics of populations-at-risk, these are referred to as Predisposing, Enabling, and Need variables (Padgett, & Brodsky, 1992).

Predisposing variables include demographic characteristics such as age, gender, and marital status. These variables are termed immutable because they are biological or social givens that are not alterable by changes in health policy. Enabling variables include financial or other means individuals have at their disposal to acquire health services such as income, insurance coverage, or transportation. Essentially, these variables describe what "enables" the patient to gain access to and use health services. Need variables refer to the patient's health status or level of illness. Examples include symptom recognition and severity as perceived by the patient, or conditions evaluated by the provider in terms of the actual diagnosis or severity of presenting complaints. While the Predisposing variables are largely immutable, the Enabling and Need variables are predominantly mutable in that they can be affected by changes in health policy/ legislation, medical benefits associated with employment, or the organizational structure of the medical treatment facility (Williams, & Torrens, 1993).

Design Strategy and Sampling Methodology. This was a descriptive study that established a patient profile of the Saturday FPC user population based on ten independent variables: Age Category, Gender, Beneficiary Category, Military Unit Assignment, Military Rank, Zip Code, Enrollment Status, Referral Source, PCM Assignment, and Diagnosis. These same independent variables were used to establish a patient profile that described the M-F FPC user population. These user profiles were then compared to determine if statistically significant differences existed between the independent variables that attributed to or accounted for whether a patient used the Saturday FPC or the M-F FPC. This was accomplished in three separate quantitative analyses performed retrospectively using secondary data obtained from the

Composite Health Care System (CHCS) and the Ambulatory Data System (ADS). The first two quantitative descriptive analyses are described below and in the description of variables section. The third analysis is described in the inferential statistical analysis section that follows. The researcher used the SPSS version 7.5 statistical software program to perform the descriptive and inferential statistical analyses.

First, the Saturday FPC user population was described in terms of the independent variables listed above for all patient visits (N= 429) that occurred in FP1 and FP2 on Saturdays during the five-month period from June 1, 1998 through October 30, 1998. The data for the independent variables was obtained for each Saturday FPC visit from the patient appointment scheduling demographic template of CHCS. This template was chosen as the data retrieval source because all patient appointments are made through and draw information from this template. Additionally, the demographic information contained in this template is updated and verified routinely by appointment clerks in coordination with the patient as patient appointments are made either in person or telephonically.

For purposes of this study, data retrieval was made possible by developing an ad-hoc patient appointment list report that extracted information from the template and distinguished the following characteristics for each outpatient visit: name, family member prefix (FMP), age, sex, unit of assignment, rank, zip code, appointment date, appointment type, enrollment status, referral source, and PCM assignment. CHCS was able to extract and sort this data by clinic (i.e., where the visit took place), day of visit, and time of visit, thus enabling the researcher to distinguish normal duty hours from extended hours of operation. Unfortunately, CHCS did not have the capability to distinguish an outpatient diagnosis field that is standardized with respect to outpatient diagnosis coding procedures such as those established via the International

Classification of Diseases, 9th Revision (ICD-9) coding system. Thus, the Diagnosis independent variable was obtained from a separate ad-hoc report generated through the ADS which defines the diagnosis numerically as a five-digit code and produces a brief standardized diagnosis description for each code. The ADS was also capable of extracting and sorting outpatient visits by clinic and day of visit, thus enabling the researcher to cross reference the patient visit information from CHCS with the appropriate ICD-9 codes and diagnosis descriptions obtained through the ADS. Data from these two reports relating to the specified dependent and independent variables was downloaded as a text file into an EXCEL spreadsheet. The EXCEL spreadsheet was cleaned, formatted, and electronically transferred into an SPSS spreadsheet where the researcher coded the variables according to a coding scheme developed for each variable. Descriptive statistics were performed for each independent variable within the Saturday FPC sample population. Frequencies were calculated for each independent variable using SPSS. Additionally, percentages of the sample population represented by the frequency distribution in each category were calculated using SPSS. These descriptive statistics enabled the researcher to describe Saturday FPC users based on the independent variables analyzed for Saturday FPC visits. This is addressed in further detail with respect to each independent variable in the description of variables section below.

Next, the M-F FPC user population (N = 450) was described in terms of the same independent variables listed above via a sampling of 450 outpatient visits that occurred in FP1 and FP2 (i.e., 225 from FP1 and 225 from FP2) during normal duty hours over the same five month period from June 1, 1998 through October 30, 1998. Thus, the sample representing the M-F FPC population consisted of approximately the same number of outpatient visits as the Saturday FPC sample population. This was important because the larger and more consistent the

sample size, the smaller the standard error of difference is within the samples being compared and thus the better able the statistical test is in rejecting the null hypothesis at the defined alpha level (Spatz, 1993).

In this analysis, the same CHCS and ADS ad-hoc reporting formats were used but gathered data from only those outpatient visits that occurred Monday through Friday from 7:30 a.m. until 4:30 p.m. This was achieved by selecting 90 outpatient visits per month (i.e., 45 from FP1 and 45 from FP2) from a different weekday for each the five months analyzed. For example, 90 Monday visits were selected for the month of June, 90 Tuesday visits for the month of July, 90 Wednesday visits for the month of August, 90 Thursday visits for the month of September, and 90 Friday visits for the month of October. This sampling strategy was important because the researcher had to be able to correlate the two ad-hoc reports by day of visit and clinic. Since there are thousands of normal duty hour visits per month in both FPCs, a completely random selection process for both CHCS and ADS retrievals would not lend itself to corresponding the correct ICD-9 code with the remaining independent variable demographic information. The sampling method described above allowed for the appropriate correlation of ICD-9 codes and provided a representative sampling from all normal duty days encountered within the course of a week. As indicated above, descriptive statistics were performed for each independent variable within the M-F FPC sample population as outlined in the description of variables section below.

Descriptive Statistics: Description of Variables. The dependent variable for this study was Day of Visit. The predisposing independent variables for this study were Age Category, Gender, Beneficiary Category, Military Unit Assignment, Military Rank, and Zip Code. The

enabling independent variables were Enrollment Status , Referral Source, and PCM assignment. The need independent variable was defined in terms of provider Diagnosis.

A variety of studies were identified throughout the literature review process that support using these dependent and independent variables to describe the user patient populations of this study. Below, the researcher operationally defines the variable, indicates how the variable was used in a previous study, describes how the variable was used in this study, and explains the importance of evaluating the variable.

Dependent Variable:

Day of Visit. Day was defined in terms of the particular day of the week (i.e., Saturday), while visit was defined in terms of an outpatient visit. An outpatient visit "is counted each time an eligible beneficiary presents himself/ herself to a separately organized clinic or specialty service for examination, diagnosis, treatment, evaluation, consultation, counseling, and/ or medical advice" (Medical Summary Report User's Manual, 1985, p. 3-1). More often the visit was scheduled by the patient with assistance from the health care facility, but occasionally the patient obtained the outpatient visit by simply walking in to the clinic.

In this study, the researcher defined Saturday FPC visits as those visits that took place on Saturday from 9:00 am. to 3:00 p.m. while M-F FPC visits are those visits that took place Monday through Friday from 7:30 a.m. to 4:30 p.m. The researcher coded the Day of Visit dependent variable into SPSS as a dichotomous variable (i.e., a variable that takes the form of only one of two possible values) where Saturday visits are represented as 0 and M-F visits are represented as 1. The day of visit is important because it easily distinguishes the user populations according to when patients' sought care and allows for the independent variables described to be readily identified with when the outpatient visit occurred.

The researcher describes the independent variables listed below in relation to when patients sought care (i.e., Saturday versus Monday through Friday). Additionally, the researcher determines if the day of visit is dependent on any or all of the independent variables listed below that either predispose, enable, or cause the patient to need an outpatient visit.

Independent Variables:

Age Category and Gender. Differentiates the user patient population according to age category and gender. A 1993 Canadian study entitled "Who Goes to After-Hours Clinics" performed by Val Rachlis MD examines an after-hours clinic developed by family physicians of a major community hospital. The study established both a physician and patient profile of an after-hours clinic based on a demographic analysis of its user population. Specifically, the patient profile was developed using age, gender, major diagnoses, and whether or not there was a primary care giver. Patient distribution by age and gender was accomplished by means of a frequency distribution where gender was separated out for each age category based on the frequency of occurrence. Percentages by gender for each age category were then obtained by dividing the number of males and females for each category by the total number of males and females within the sample population. Age was defined in terms of a continuous variable and then categorically separated in the following manner: less than 1 year, 1-10 years, 11-16 years, 17-50 years, and greater than 50 years. Gender was defined as a dichotomous variable in terms of male or female for each age category listed above and frequencies were calculated based on the sample population. Results of the study revealed that most of the patients were in two age groups. Children aged 1 to 10 years represented 24.6% and were fairly evenly divided with respect to gender. Adults aged 21 to 50 represented 46.7% of the patients with a female to male ratio of almost 2:1. Approximately 13% of the adults were greater than 50 years old.

For this study, the researcher employed the same methodology as indicated above but modified the age categories to better differentiate the 65 year old and older patient population. This was accomplished by adding a 51-64 age category and a 65 + age category. As such, the patient's age was entered into SPSS as a continuous variable (i.e., chronological age of the patient in total years) and coded according to the following age categories: 0 = less than 1 year, 1 = 1-10 years, 2 = 11-16 years, 3 = 17-50 years, 4 = 51-64 years, and 5 = 65 years and older. Gender was entered into SPSS as a dichotomous variable and coded as follows: 1 = Male, 0 = Female. SPSS calculated the number of occurrences within each age category and gender, provided a frequency distribution by age category and gender, and calculated percentages by gender within each age category.

It is important to distinguish the user populations according to age category, especially those in Category 5, since RACH is now an at-risk provider for Medicare eligible service retirees that are enrolled to TRICARE Senior Prime. Understanding Saturday FPC use by this age group can help physicians and administrators respond to physician staffing issues, particularly those involving the number of IM physicians who rotate through the Saturday FPC.

Beneficiary Category. Differentiates the user patient population according to their basis of eligibility for medical care. The eligibility for medical care was based on the Defense Eligibility Enrollment Reporting System (DEERS). A Family Member Prefix (FMP) was used to distinguish beneficiaries according to their relationship to the Active Duty (AD) or Retired (RET) service member. For example, the FMP for AD and RET service members is 20. This appears before the full Social Security Number (SSN) to identify this person as the sponsor for medical care. Alternatively, an Active Duty Dependent (ADD) spouse was identified with a FMP of 30 which appears before the sponsor's SSN. This same rationale applies to spouses of

retired service members. Finally, children were identified by FMP's of 01, 02, 03, etc., denoting their birth chronology respectively.

In a previous U.S. Army-Baylor University graduate management project that compared emergency room utilization before and after the implementation of TRICARE, Gamerl (1995) used beneficiary status as an independent variable to describe and predict emergency room utilization. Beneficiary status was defined in terms of the following groups of emergency room users: active duty, active duty dependent, retiree, retiree dependent, dependent of a deceased retiree, civilian, and other. This method was effective in differentiating the user populations and enabled the researcher to determine, for example, that 50.5% of emergency room use could be attributed to the active duty dependent patient population while only 9.7% could be attributed to the retired dependent patient population.

For purposes of this study, it is important to be able to further differentiate the user patient population among AD and RET beneficiaries. As such, the following categories were established by the researcher to delineate, for example, an AD service member FMP 20 from a RET service member FMP 20 and an ADD spouse FMP 30 from a retired spouse FMP 30:

Category 1: Active Duty (AD) service member.

Category 2: Active Duty Dependent (ADD) of an AD service member. Includes spouse and/ or children.

Category 3: Retired (RET) from active duty.

Category 4: Retired Dependent (RETD) of a retired service member. Includes spouse and/ or children.

Category 5: Deceased Retired Dependent (DRD). Includes widows, widowers, and children of deceased retired service members.

Category 6: Other. Includes civilians in the unlikely chance that a civilian is seen for primary care services.

The patient's Beneficiary Category was entered into SPSS and coded as follows: 1 = Category 1, 2 = Category 2, 3 = Category 3, 4 = Category 4, 5 = Category 5, and 6 = Category 6. SPSS calculated the number of occurrences within each beneficiary category, provided a frequency distribution by beneficiary category, and calculated percentages within each beneficiary category based on the sample population.

Establishing these categories was made possible since the CHCS demographic template indicates RETSP (for retired sponsor) in place of a unit of assignment. This differentiation is important to determine, for example, if retired beneficiaries are using the Saturday FPC more, the same as, or less than active duty beneficiaries.

Military Unit Assignment. Differentiates the AD service member and ADD user patient population according to a military unit of assignment. Thus, the AD service member is assigned to one specific military unit that identifies his/ her organizational affiliation within the military community. The service member's dependents, defined in terms of spouse and/ or children by FMP, were likewise classified according to their sponsor's military unit. In the case of retirees and dependents of retirees, the CHCS demographic template indicates RETSP (for retired sponsor) in place of a unit of assignment. This automatically categorizes the retired beneficiary population and does not falsely include them into an active duty unit. This also helps differentiate this user group when entering data into SPSS, since SPSS will sort and calculate this category separately as it does with the other units entered.

For purposes of this study, the unit of assignment was obtained through the CHCS ad-hoc report in the form of an abbreviated Unit Identifier Code (UIC). The UIC was entered into SPSS in its original alphanumeric format. SPSS was able to sort the UICs in this format just as if the researcher coded each UIC separately. SPSS calculated the number of occurrences for each UIC,

provided a frequency distribution according to UIC, and calculated percentages for each UIC based on the sample population.

Evaluating this variable is important because it provides information with respect to unit specific use of the Saturday FPC. For example, units with better organized family support groups may be more aware that a Saturday FPC exists at RACH and thus may be more inclined to use it. Or ADDs of a deployed unit may seek care on Saturday's more often than during normal hours because the ADD spouse works during the week. A plethora of other specific reasons may exist, but being able to associate the day of visit as defined in terms of the dependent variable with the unit of assignment might help RACH focus both patient/ family education and marketing efforts more effectively.

Military Rank. Differentiates the user patient population according to their hierarchy and pay grade within the military organization.

Gamerl (1995) also used military rank to distinguish users of emergency room services. The researcher established five categories that delineated the following groups of users: E-1 to E-4, E-5 to E-9, W-1 to W-4, O-1 to O-7, and civilian/other. Frequencies were noted for each category and percentage of sample population calculated. The researcher was able to identify differences in use based upon military rank, in that almost 89% of users fell into the two enlisted categories while Commissioned Officers attributed to only 7.5% of users.

For purposes of this study, the researcher was interested in describing the user populations based on the sponsor's seniority within the military organization. Additionally, the researcher was interested in determining whether differences in military rank account for or can explain differences in Saturday FPC utilization if, in fact, differences are noted between the Saturday FPC and M-F FPC user populations.

The patient's rank or rank affiliation (in the case of ADDs and RETDs) was entered into SPSS and coded as follows: 1 = E1-E4; 2 = E5-E9; 3 = W1-W4; 4 = O1-O3; 5 = O4-O6; 6 = Other. SPSS calculated the number of occurrences for each coded rank category, provided a frequency distribution according to rank category, and calculated percentages for each rank category based on the sample population.

Evaluating this variable is important because it provides clues with respect to patterns of use according to military rank by the Saturday FPC and normal duty hour FPC user populations. For example, younger enlisted soldiers may use the Saturday FPC more because they have fewer opportunities during the week as a result of training missions, field exercises, etc. Conversely, senior enlisted members may have more flexibility in their weekday to schedule and keep a M-F FPC appointment. A number of generalizations can be formulated, but understanding who uses these services is a key link to providing appropriate medical services to meet the needs of the specific user population (Berkowitz, 1996).

Zip Code. Differentiates the user patient population according to residence/ location within a rural or metropolitan service area.

Gamerl (1995) also used zip codes as an independent variable to describe the location of emergency room users throughout the Lawton-Ft. Sill community. This was accomplished by means of a frequency distribution where four predominant zip codes and an Other category were established to account for how many emergency room visits were indicative of each category. A percentage of sample population was obtained by dividing the frequency of each category by the total sample population. This helped the researcher identify where the majority of patients were coming from within the community to acquire emergency room services. Gamerl found that

only 27.5% of users were identified with the 73503 zip code, while over 40% were identified with the 73505 zip code.

For purposes of this study, the patient's zip code was entered into SPSS in its original five-digit format. Once again, SPSS sorted the zip codes in this format just as if the researcher coded each zip code separately. Additionally, maintaining the zip codes in their original format enhanced readability and alleviated the possibility of miscoding zip codes into the wrong categorical variable. SPSS calculated the number of occurrences for each zip code, provided a frequency distribution according to zip code, and calculated percentages for each zip code based on the sample population.

The zip code provides an excellent indication of where the user population is located within the city of Lawton, OK but more importantly identifies whether the user patient population resides on or off the military installation by virtue of the associated zip code. For example, 73503 is the only zip code for on-post residences. Thus, all other zip codes identified within the sample population indicate the user lives off-post. This variable is important because it describes users with respect to where they live in the surrounding community. Additionally, it describes whether or not users typically reside on or off post, and can give clues with respect to how important location is, for example, in determining whether or not a patient will drive from off-post on a Saturday to seek care in a primary care setting.

Enrollment Status. Differentiates the user patient population based on what type of medical plan they are enrolled in (i.e., TRICARE Prime, TRICARE Extra, TRICARE Standard, TRICARE Senior Prime, or Silver Care) from those who are either not enrolled or who are authorized direct care only and obtain care on a space available basis.

In a study of primary care and emergency department overcrowding; Grumbach, Keane, & Bindman (1993) found that nearly half (45%) of the patients interviewed cited access barriers to primary care as their reason for using the emergency department. More importantly, patients with a regular source of care tended to use the emergency department more appropriately than did patients without a regular source of care. The researchers defined having a regular source of care in terms of the patient falling into one of the following insurance categories: Medicare, Medicaid, Other insurance, and none. Frequencies were ranked according to occurrence and percentage of sample calculated based on the sample population. Fifteen percent of the sample population indicated they were enrolled with Medicare, 13% with Medicaid, 1% with other insurance, and 71% with none (Grumbach et al., 1993). Insurance status was also used as a descriptive characteristic in a utilization study that examined the use of specialty versus primary care. Clancy & Franks (1997) studied the impact of HMO insurance and other patient-related factors with respect to the number of patient visits to specialists and primary care physicians. Insurance status was defined in terms of five categories: Medicare, Medicaid, HMO, private, and self-pay. The frequency of visits for each category was accounted for and then separated into percentages by who either received care from a specialist or PCM for each category respectively.

For purposes of this study, the patient's enrollment status was coded and entered into SPSS as follows: 0 = Not enrolled; 1 = TRICARE Prime; 2 = TRICARE Extra; 3 = TRICARE Standard; 4 = Silver Care; 5 = TRICARE Senior Prime; 6 = Direct Care Only. Soldiers just entering the military and newborns composed the majority of patients who were authorized care yet not enrolled at the time of their visit. These patient visits were coded 0. The majority of patients authorized direct care only were retired seniors age 65+ that were not enrolled with

TRICARE Senior Prime or the former program called Silver Care. These patient visits were coded 6.

SPSS calculated the number of occurrences for each coded category listed above, provided a frequency distribution according to the coded enrollment status, and calculated percentages for each coded category based on the sample population.

While the majority of RACH patients should be enrolled to either TRICARE Prime, Extra, Standard, Senior Prime, or Silver Care, outliers may exist where patients are still accessing care on a space available basis. It is important to account for this from an enrollment perspective, but it is also important to consider whether or not the non-enrolled members have an impact on Saturday FPC utilization. For example, the data analysis may reveal that non-enrolled members are presenting to the Saturday FPC on a walk-in basis because they can not acquire an appointment during normal duty hours. Conversely, the data may reflect that non-enrolled members typically gain access to M-F FPC on a space available basis by virtue of other appointment cancellations. Nevertheless, describing utilization in terms of enrollment status can assist RACH in determining when its enrolled population is seeking primary care services and if differences between Saturday FPC and M-F FPC utilization can be explained by or attributed to differences in enrollment status.

Referral Source. Identifies how the patient accessed an appointment to either the Saturday FPC or normal duty hour FPC.

A study by Choate & Walton (1996) addresses the use and benefits of the Health Care Advisory Program at RACH where registered nurses are employed to telephonically triage and refer patients to the appropriate clinic/ service for care. The population consisted of 9,066 military health care beneficiaries calling the Nurse Care Center (NCC) from February 1, 1996

through July 31, 1996. A random sample of 859 callers were mailed surveys in which 300 (35%) responded to the survey. Eighty-one percent of the respondents were female. Forty-two percent of the respondents received advice for a patient between 15 and 24 years of age, 17% for children under the age of 1, and 17% for adults between 25 and 34 years of age. Fifty-four percent were parents of the person needing the health care advisor's services while 32% of the respondents were first time parents (Choate & Walton, 1996). This data illustrates the impact the NCC has on the referral process within RACH. It also suggests that the NCC should be a key player in the referral process with respect to booking appointments in the Saturday FPC if patients are using the nurse advice line to access primary care.

For purposes of this study, the researcher described the sources of referral for both Saturday FPC and M-F FPC users in terms of the department or clinic responsible for the referral. The patient's referral source was entered into SPSS according to the clinic area that made the referral booking via clinic abbreviations such as: NCC = Nurse Care Center, ER = Emergency Room, FP1 = Family Practice Clinic 1, FP2 = Family Practice Clinic 2, PAS = Patient Appointment System (i.e., central appointments), PE = Physical Exams, SC = Sick Call, and OR = Operating Room. SPSS calculated the number of occurrences for each referral source, provided a frequency distribution according to the referral source, and calculated percentages for each referral source based on the sample population.

The referral source is an important variable because it describes how the patient accessed the system for care and if the system was able to channel the patient to the appropriate place for the appropriate level of care. If, for example, the patient was referred to a same day appointment with the Saturday FPC from the NCC via the nurse advice line, this implies that a primary care appointment was achieved for a patient who might have otherwise presented to the emergency

room for non-emergent care. This is a success story because here the Saturday FPC is serving to provide primary care for those who need to be seen, for example, before Monday, yet whose illness is not serious enough to consume the valuable resources associated with an emergency room visit. Conversely, a patient may acquire a routine follow-up appointment based on the needs of the facility or provider. For example, a patient who was referred from the surgery clinic for a follow-up appointment to take place on Saturday because the provider was working Saturday as opposed to Friday. In this case the patient visit is facility or provider driven and may have little to do with patient preference for a Saturday appointment. This example tends to contradict the published literature with respect to operating a primary care clinic during nontraditional duty hours to, for example, decrease costly inappropriate utilization of an emergency room or improve patient satisfaction with respect to accessing primary care.

PCM Assignment. Identifies what clinic manages the beneficiary's care from a primary care perspective.

Interestingly, Rachlis (1993) found that most patients (96.5%) who used the after-hours clinic reported having a primary care giver. Forty-two percent indicated their PCM was a physician on the staff of the clinic and also on the staff of the local community hospital. Thirty-four percent had a PCM on staff at the local hospital but who was not part of the after-hours clinic staff, while 14% had a PCM outside both health treatment facilities.

Since implementing the PCI in April 1998, care may be managed by either a family practice, internal medicine, or pediatric physician but PCM assignments are grouped according to the following clinics: FP1 = Family Practice Clinic 1, FP2 = Family Practice Clinic 2, PEDS = Pediatric Clinic, and IM = Internal Medicine Clinic.

The patient's PCM assignment was entered into SPSS according to the clinic area they are assigned to in the CHCS. The clinic abbreviations listed above were used to designate the PCM assignment category. SPSS calculated the number of occurrences for each PCM assignment, provided a frequency distribution according to the PCM assignment, and calculated percentages for each PCM assignment based on the sample population.

This is a useful variable to describe because it can provide clues with respect to utilization by defined groups according to PCM assignment. For example, Saturday FPC visits that are predominantly made by patients assigned to IM may indicate that the IM clinic is over-utilized during the week. On the other hand, it may indicate that patients assigned to IM attend the Saturday FPC more because an IM provider is on duty and can meet their primary care needs during the weekend.

Diagnosis. Differentiates the user patient population based on a determination of the nature of a case of illness or disease by the health care provider.

Rachlis (1993) identified the four most common diagnoses among 1,511 patients who were seen over a 30 day period in an after hours clinic and distributed them by frequency for each gender in descending order. This data was obtained by a retrospective patient record review of all 1,511 patients who presented for a patient visit during the month. An Other Diagnoses category was established that grouped the remaining illnesses that typically accounted for less than 20 visits each during the month. Percentages by gender were then calculated for each of the five categories based on the frequency of occurrence divided by the total number of males and females respectively. The four major diagnoses for males were grouped as follows: respiratory infection (upper and lower), trauma, skin condition, viral condition, and Other. The four major diagnoses for females were grouped as follows: respiratory infection (upper and lower), skin

condition, urinary infection, trauma, and Other. Respiratory infections accounted for 51% in male patients and 47% in female patients, while urinary tract infections accounted for only 8% of the visits by female patients. Meanwhile, trauma was the diagnosis for 13% of male and 7% of female patients. Diagnoses from the Other Diagnoses category that are noteworthy and were responsible for at least 20 visits during the month included conjunctivitis (61); vomiting, diarrhea, or abdominal pain (48); asthma (40); headache (38); vaginitis (27); and anxiety (20) (Rachlis, 1993).

The researcher in this study used the same approach described above with respect to presenting the descriptive statistics but obtained the diagnosis data for each outpatient visit within each sample population from the Ambulatory Data System (ADS) according to ICD-9 code. These codes were entered into SPSS in their original numeric format. SPSS calculated the number of occurrences for each ICD-9 code, provided a frequency distribution according to all inputted ICD-9 codes, and calculated percentages for each ICD-9 code based on the sample population. From the frequency distribution, the top five diagnoses according to frequency of occurrence were presented and cross-referenced to their operational definition as defined through ADS. For example, ICD-9 code 462 may occur in over 50% of the observed frequencies among the Saturday FPC user population and thus represents one of the top five diagnoses for Saturday FPC visits. ICD-9 code 462 corresponds with the diagnosis description of acute pharyngitis via the ADS ad-hoc report, a diagnosis likely to be found among users of an extended hours primary care clinic.

Analyzing this variable is important because it allowed the researcher to describe what major diagnoses are indicative of the Saturday FPC and M-F FPC user populations and to

determine if differences exist that may attribute to or influence patients' use of the Saturday FPC over the normal duty hour FPC.

Inferential Statistics. Finally, the independent variables from the two sample populations were compared using an inferential statistical test called the Chi Square (X^2). Below, the researcher discusses the reason for selecting X^2 as the statistical method of choice, how X^2 is used in hypothesis testing, how X^2 was used in this study, and how X^2 has been used in other studies.

According to Spatz (1993), X^2 is appropriate when the data being generated are from random or at least representative samples of the subject populations and when the data being compared are frequency counts. X^2 is not appropriate, however, to test a difference between means or a difference between medians obtained from continuous data. Frequency counts are simply the number of observed occurrences (i.e., the number of persons, objects, or events) that occur within an assigned category. For example, a sample population of 100 patients can be categorized by age where several age categories are defined (i.e., 1-10 years, 11-20 years, 21-30 years, etc). If 10 patients fall within the 1-10 year age category, the raw frequency count is likewise 10 regardless of the individual age differences within the category, and the percentage frequency within the sample distribution is therefore calculated as 10%.

Since X^2 is the preferred sampling distribution used to analyze frequencies, all of the variables used in this study were coded in a manner whereby SPSS could sort and calculate by frequency of occurrence. A X^2 analysis compares the observed frequencies of a category (i.e., the actual raw counts or percentages of patients who fell within the 1-10 year age category) to frequencies that would be expected if the null hypothesis or "no difference model" is true

(i.e., the expected counts automatically generated through SPSS). Here SPSS establishes the empirical basis for the null hypothesis by calculating the expected frequency distribution for each category based on the probability that a randomly chosen event from the sample population would fall into that particular category (Spatz, 1993). SPSS performs this calculation internally for each category within the defined independent variable and makes comparisons with the observed frequencies. From these comparisons, a X^2 statistic is computed that is used to determine whether the null hypothesis can be rejected or accepted. Here, the X^2 statistic is compared to a tabled X^2 distribution where alpha values or various levels of statistical significance (i.e., probability that the findings are due to chance alone) are provided and arranged according to degrees of freedom (i.e., the number of categories within a defined independent variable minus 1). To be statistically significant, the X^2 statistic obtained from SPSS must be equal to or larger than the X^2 value found in the tabled distribution for a given significance level. If this occurs, the null hypothesis can be rejected and the alternate hypothesis can be accepted at the particular significance level. SPSS automatically indicates the associated significance level along with the X^2 statistic thus eliminating the need for manual tables. The alpha for determining minimal statistical significance was $p < .05$ as determined by SPSS. This means that the odds of the noted differences between the independent variables from the two sample populations being due to chance alone is less than 5 out of 100.

X^2 was used in this study as a test of independence where each independent variable between both sample populations (i.e., corresponding to the dependent variable from both sample populations) was compared. This was performed in ten separate X^2 analyses (i.e., one for each independent variable versus the dependent variable) using the SPSS crosstabs function. Crosstabs develops a contingency table, for example, where Day of Visit

(the dependent variable) is listed and coded on two vertical rows and the number of categories within Referral Source (the independent variable) are listed and coded on horizontal rows. The contingency table (also referred to as 2x2 table) is useful because it organizes the data in compartments or boxes that are easily referenced to the appropriate rows/ columns and provides additional descriptive statistics about the nature or relation of each category to the dependent variable it is associated with. In this example, SPSS calculates the raw frequency count per coded day per coded category, the percent within day (i.e., raw frequency count/ # frequencies per day), the percent within referral (i.e., raw frequency count/ # frequencies per referral category), and the percent of total (i.e., raw frequency count/ # frequencies for all referral categories). Finally, and most importantly, when one of the independent variables such as Referral Source (corresponding to the dependent variable Day of Visit = Saturday) is compared to the Referral Source corresponding to the dependent variable Day of Visit = Other, the X^2 method is able to test whether a particular Referral Source is associated with the use of the FPC on either Saturday or Other as specified in the coding of the dependent variable. For example, by examining the specific referral categories for Saturday visits coded 0 and normal duty hour visits coded 1, SPSS produces raw counts and percentages for each referral category defined within the independent variable Referral Source. This identifies a referral made to either the day of visit coded as 0 or the day of visit coded as 1. SPSS then compares, for example, the number of ER referrals that were made to either 0 or 1. SPSS performs this function for each referral category defined within the independent variable Referral Source (i.e., ER, FP1, FP2, NCC, etc.) and renders a X^2 statistic. If the X^2 is associated with an alpha of .05 or less (i.e., .04, .01, .001, etc) than the null hypothesis can be rejected. Thus, the alternate hypothesis is supported and referral source can be said to attribute to or influence whether a patient uses the Saturday FPC or

M-F FPC. A further examination of the categorical frequency distributions and descriptive statistics contained within the contingency table will lend clues with respect to which referral areas impact which day more or less prominently. Crosstabs contingency tables were constructed and X^2 performed using SPSS on the remaining independent variables as described above. The contingency tables were constructed in SPSS as follows: Day of Visit versus Age Category, Day of Visit versus Gender, Day of Visit versus Beneficiary Category, Day of Visit versus Military Unit Assignment, Day of Visit versus Military Rank, Day of Visit versus Zip Code, Day of Visit versus Enrollment Status, Day of Visit versus Referral Source, Day of Visit versus PCM Assignment, and Day of Visit versus Diagnosis.

Finally, two related utilization studies lend support in using the X^2 statistic to compare frequency data among categorical and dichotomous variables. In a study by Lehmann, Barr, & Kelly (1994) of emergency department utilization by adolescents, X^2 was used to test the association of discharge diagnosis with patient complaints. Discharge diagnosis (the independent variable) was defined in terms of six disease categories while the percentage of patient complaints (the dependent variable) was separated according to gender as a dichotomous variable. The X^2 revealed that injury was associated with female complaints (62% versus 35%, $X^2 = 309.7$, $df = 1$, $p < .001$) while pain was associated with male complaints (22% versus 15%, $X^2 = 5.49$, $df = 1$, $p < .05$) (Lehmann et al., 1994). Similarly, Holroyd & Duryee (1997) used X^2 to compare characteristics of persons utilizing a geriatric psychiatry outpatient clinic. In this study, X^2 was used to compare demographic characteristics such as gender, race, age category, and psychiatric diagnosis (defined as independent variables) among two sample populations where psychiatric history (the dependent variable) was defined in terms of a dichotomous variable where patients were differentiated according to whether or not a previous psychiatric

history existed. Interestingly, this study also used descriptive statistics to summarize the demographic and clinical characteristics of the sample populations. Frequencies and percentages were calculated for all categorical variables (i.e., Gender, Age Category, Race, Living Situation, and Psychiatric Diagnosis), while means and standard deviations were calculated for continuous variables (i.e., Chronological Age, Number of Medications Taken, and Mental State Examination Score). Finally, differences between these variables were assessed using X^2 analysis for all categorical variables and the Student's *t* test for all continuous variables. Of the demographic variables considered, only gender revealed a statistically significant difference between the groups. Females were found to be much more likely than males to have a previous psychiatric history (69.3% versus 33.3%, $X^2 = 15.08$, $df = 1$, $p < .0001$). Of the diagnosis variables considered, patients with a current diagnosis of depression were more likely to have a previous psychiatric history (63.9% versus 45.6%, $X^2 = 4.57$, $df = 1$, $p = .032$) (Holroyd et al., 1997). While Holroyd & Duryee's focus was aimed at characterizing and comparing elderly patients using a geriatric psychiatry outpatient clinic, their descriptive and inferential statistical analyses provided a valuable comparative template for use in this study.

Reliability and Validity. The reliability and validity of the data collected from CHCS was assumed because CHCS is used by the MHS as its standard system for collecting inpatient and outpatient data. As such, CHCS is the primary hospital information system that extracts data from DEERS to determine medical eligibility, and data from the Ambulatory Data System (ADS) to record outpatient services.

Intra-rater reliability was ensured because the researcher was the sole collector and processor of the data that was entered into the SPSS spreadsheet. A strict entry and reviewing process was performed by the researcher to ensure data was input correctly. This process was

validated by having a second individual, the researcher's wife, cross-reference 10% (88 patient visits) of the SPSS inputted data with the CHCS patient appointment list ad-hoc report. No errors were uncovered in this 10% randomly selected sample.

SPSS offers the flexibility to further differentiate variables within specific categories and compare them to other variables. This is a valuable tool to validate and expand upon previous findings. The researcher performed six additional crosstabulation analyses to validate the results of this study. The additional analyses were: Day of Visit x Gender x Age Category, Day of Visit x Gender x Beneficiary Category, Beneficiary Category x Gender x Age Category, Day of Visit x Enrollment Status x Age Category, Age Category x Gender x Referral Source, and Age Category x Gender x Diagnosis. Results from these additional tests support the original findings and are addressed in further detail throughout the discussion section.

Patient Confidentiality. No identifying features about patients were used in this study. In developing the SPSS spreadsheet, the researcher was careful not to include identifying patient characteristics such as full names, addresses, and social security numbers. Additionally, using secondary data collected retrospectively required no direct patient contact or interaction. This process ensured patient anonymity and removed the researcher from instances where patient confidentiality could be compromised.

Pilot Study. A pilot study was performed to test the design and methodology of this project. It drew data from the target populations and simulated the procedures that were developed for data collection and analysis. Data was drawn and analyzed from 60 outpatient visits that occurred during the month of June 1998. Thirty of these visits were selected randomly from those who attended the Saturday FPC, while the remaining 30 were selected randomly from those who attended the M-F FPC. Both selections were made equally random among FP1 and

FP2 (i.e., 15 from FP1 and 15 from FP2) since both clinics are open and receive patients during Saturday and normal duty hours.

The descriptive statistics for both sample populations in the pilot study were extremely consistent with the findings obtained in the final analysis. The X^2 inferential statistical analyses of the pilot study revealed that Referral Source was statistically significant ($X^2 = 31.5$; $df = 7$; $p < .0001$) and that Age Category ($X^2 = 8.1$; $df = 4$; $p < .089$) and Diagnosis ($X^2 = 49.9$; $df = 37$; $p < .077$) were approaching significance. These variables, along with Gender, Beneficiary Category, Military Unit Assignment, PCM assignment, and Enrollment Status also revealed statistical significance in the final analysis when larger sample sizes were compared. The larger the sample size, the smaller the standard error of difference there is within the samples being compared and thus the better able the statistical test is in rejecting the null hypothesis at the defined alpha level (Spatz, 1993). Zip Code and Military Rank, however, did not reveal statistical significance in either the pilot study or the final analysis indicating that these independent variables did not influence whether a patient used the Saturday FPC or the M-F FPC for their outpatient visit.

Results

An overview of the descriptive statistics for the Saturday FPC sample (N=429) revealed that 27% were between the ages of 1 and 10, 57% were female, 66% were spouses and children of active duty service members while only 9% were spouses and children of retired service members, 7.5% were assigned to RACH, 36% were affiliated with lower enlisted personnel from the rank of E1-E4, only 27% of users resided on the military installation, almost 10% were not assigned to a primary care provider, 27% were referred from the ER while 32% were referred from the NCC, over 82% were assigned to either FP1 or FP2 as their PCM, and the leading

diagnoses made were for acute urinary tract infection (8.4%), otitis media (6.8%), acute pharyngitis (5.6%), unspecified viral infections (4.2%), and nonspecific dermatitis (4.2%).

An overview of the descriptive statistics for the M-F FPC sample (N=450) revealed that only 8% were between the ages of 1 and 10 while 68% were between the ages of 17 and 50, 65% were female, 49.6% were spouses and children of active duty service members while almost 15% were spouses and children of retired service members, only 1.8% were assigned to RACH, 58% were affiliated with non-commissioned officers from the rank of E5-E9, 24% of users resided on the military installation, over 96% were assigned to a primary care provider, only 6% were referred from the ER while almost 49% were referred from PAS, over 94% were assigned to either FP1 or FP2 as their PCM, and the leading diagnoses made were for routine physical exam (12%), routine infant/ child health (9.6%), supervision of normal first pregnancy (8.4%), hypertension (8%), and gynecological exam (7.3%).

An overview of the X^2 inferential statistical analyses revealed that differences in Age Category, Gender, Beneficiary Category, Military Unit of Assignment, Enrollment Status, Referral Source, PCM Assignment, and Diagnosis between the two populations were statistically significant and influenced whether a patient used the Saturday or the M-F FPC. A patient's Military Rank affiliation and Zip Code, however, were not significant contributing factors with respect to whether patients used the Saturday or the M-F FPC.

A graphical summary of the descriptive statistics are illustrated below for each independent variable with respect to Saturday FPC visits and M-F FPC visits. Finally, categorical crosstabulation summaries and X^2 test results are presented that describe and test the significance of each independent variable with Day of Visit.

Figure 1. Age Category (Saturday Visits)

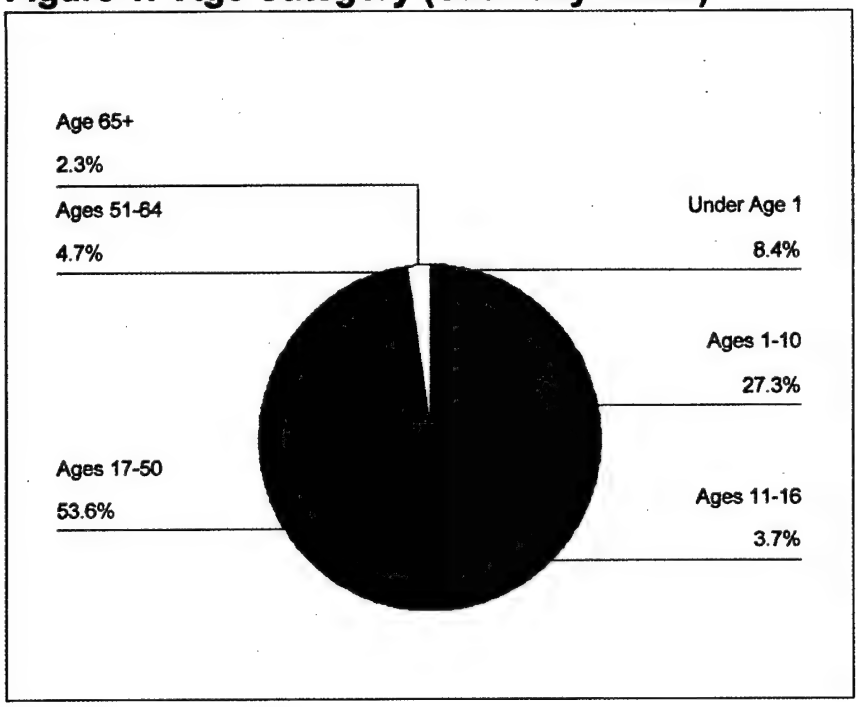

Figure 2. Age Category (M-F Visits)

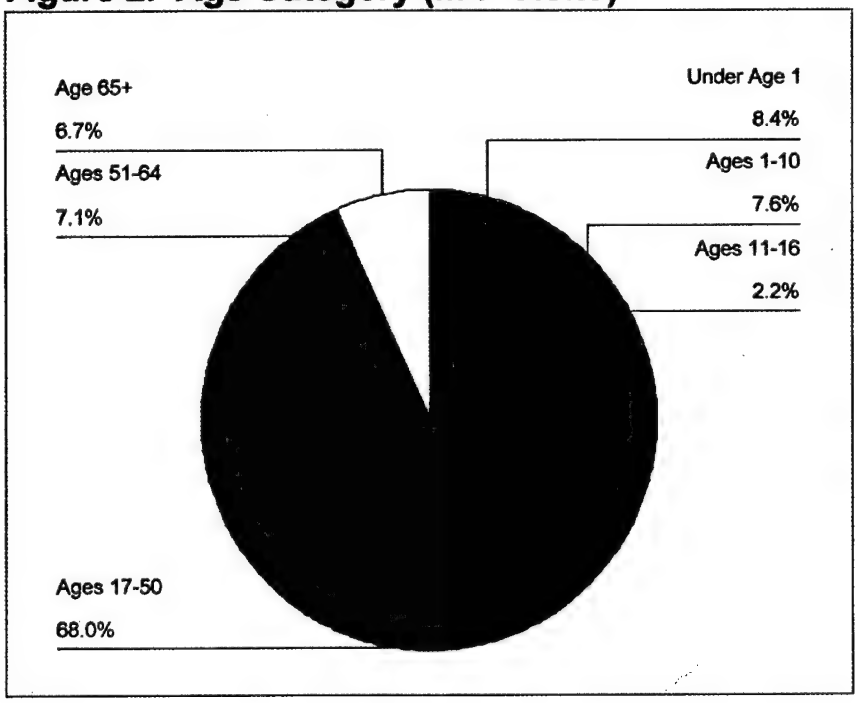

Table 1. Day of Visit x Age Category

Crosstab

			Age Category						
			Under 1 Yr.	Ages 1-10	Ages 11-16	Ages 17-50	Ages 51-64	Age 65+	Total
Day of Visit	Saturday	Count	36	117	16	230	20	10	429
		Expected Count	36.1	73.7	12.7	261.6	25.4	19.5	429.0
		% within DAY	8.4%	27.3%	3.7%	53.6%	4.7%	2.3%	100.0%
		% within AGECAT	48.6%	77.5%	61.5%	42.9%	38.5%	25.0%	48.8%
		% of Total	4.1%	13.3%	1.8%	26.2%	2.3%	1.1%	48.8%
	M-F	Count	38	34	10	306	32	30	450
		Expected Count	37.9	77.3	13.3	274.4	26.6	20.5	450.0
		% within DAY	8.4%	7.6%	2.2%	68.0%	7.1%	6.7%	100.0%
		% within AGECAT	51.4%	22.5%	38.5%	57.1%	61.5%	75.0%	51.2%
		% of Total	4.3%	3.9%	1.1%	34.8%	3.6%	3.4%	51.2%
Total		Count	74	151	26	536	52	40	879
		Expected Count	74.0	151.0	26.0	536.0	52.0	40.0	879.0
		% within DAY	8.4%	17.2%	3.0%	61.0%	5.9%	4.6%	100.0%
		% within AGECAT	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	8.4%	17.2%	3.0%	61.0%	5.9%	4.6%	100.0%

Table 2. Chi-Square Test: Day of Visit x Age Category

Chi-Square Test: Day of Visit X Age Category

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	70.145[a]	5	.000
N of Valid Cases	879		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.69.

Figure 3. Gender (Saturday Visits)

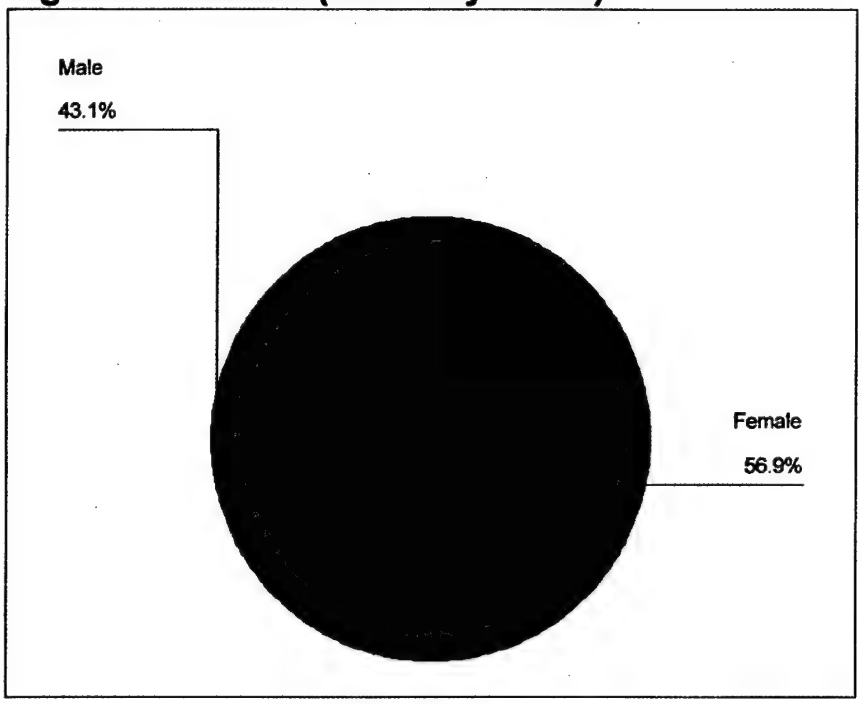

Figure 4. Gender (M-F Visits)

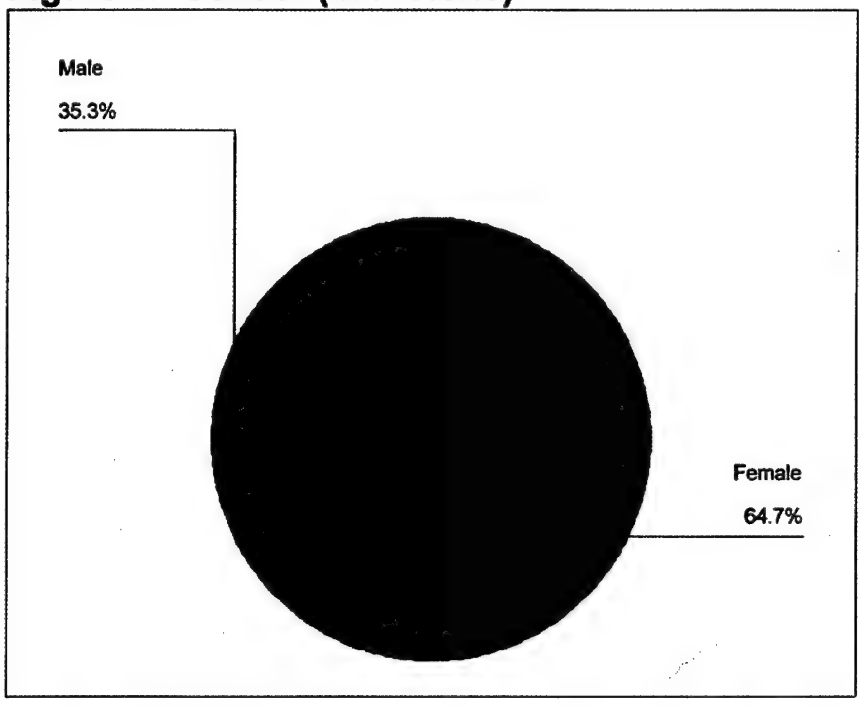

Table 3. Day of Visit x Gender

Crosstab

			GENDER		
			Female	Male	Total
Day of Visit	Saturday	Count	244	185	429
		Expected Count	261.1	167.9	429.0
		% within DAY	56.9%	43.1%	100.0%
		% within GENDER	45.6%	53.8%	48.8%
		% of Total	27.8%	21.0%	48.8%
	M-F	Count	291	159	450
		Expected Count	273.9	176.1	450.0
		% within DAY	64.7%	35.3%	100.0%
		% within GENDER	54.4%	46.2%	51.2%
		% of Total	33.1%	18.1%	51.2%
Total		Count	535	344	879
		Expected Count	535.0	344.0	879.0
		% within DAY	60.9%	39.1%	100.0%
		% within GENDER	100.0%	100.0%	100.0%
		% of Total	60.9%	39.1%	100.0%

Table 4. Chi-Square Test: Day of Visit x Gender

Chi-Square Test: Day of Visit X Gender

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.596[b]	1	.018
Continuity Correction[a]	5.273	1	.022
N of Valid Cases	879		

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 167.89.

Table 5. Patient Distribution by Age Category and Gender (Saturday Visits)

			GENDER		
			Female	Male	Total
Age Category	Under 1 Year Old	Count	16	20	36
		% within AGECAT	44.4%	55.6%	100.0%
		% within GENDER	6.6%	10.8%	8.4%
		% of Total	3.7%	4.7%	8.4%
	Age 1-10	Count	48	69	117
		% within AGECAT	41.0%	59.0%	100.0%
		% within GENDER	19.7%	37.3%	27.3%
		% of Total	11.2%	16.1%	27.3%
	Age 11-16	Count	9	7	16
		% within AGECAT	56.3%	43.8%	100.0%
		% within GENDER	3.7%	3.8%	3.7%
		% of Total	2.1%	1.6%	3.7%
	Age 17-50	Count	149	81	230
		% within AGECAT	64.8%	35.2%	100.0%
		% within GENDER	61.1%	43.8%	53.6%
		% of Total	34.7%	18.9%	53.6%
	Age 51-64	Count	15	5	20
		% within AGECAT	75.0%	25.0%	100.0%
		% within GENDER	6.1%	2.7%	4.7%
		% of Total	3.5%	1.2%	4.7%
	Age 65+	Count	7	3	10
		% within AGECAT	70.0%	30.0%	100.0%
		% within GENDER	2.9%	1.6%	2.3%
		% of Total	1.6%	.7%	2.3%
Total		Count	244	185	429
		% within AGECAT	56.9%	43.1%	100.0%
		% within GENDER	100.0%	100.0%	100.0%
		% of Total	56.9%	43.1%	100.0%

Table 6. Patient Distribution by Age Category and Gender (M-F Visits)

			GENDER		
			Female	Male	Total
Age Category	Under 1 Year Old	Count	15	23	38
		% within AGECAT	39.5%	60.5%	100.0%
		% within GENDER	5.2%	14.5%	8.4%
		% of Total	3.3%	5.1%	8.4%
	Age 1-10	Count	22	12	34
		% within AGECAT	64.7%	35.3%	100.0%
		% within GENDER	7.6%	7.5%	7.6%
		% of Total	4.9%	2.7%	7.6%
	Age 11-16	Count	3	7	10
		% within AGECAT	30.0%	70.0%	100.0%
		% within GENDER	1.0%	4.4%	2.2%
		% of Total	.7%	1.6%	2.2%
	Age 17-50	Count	209	97	306
		% within AGECAT	68.3%	31.7%	100.0%
		% within GENDER	71.8%	61.0%	68.0%
		% of Total	46.4%	21.6%	68.0%
	Age 51-64	Count	23	9	32
		% within AGECAT	71.9%	28.1%	100.0%
		% within GENDER	7.9%	5.7%	7.1%
		% of Total	5.1%	2.0%	7.1%
	Age 65+	Count	19	11	30
		% within AGECAT	63.3%	36.7%	100.0%
		% within GENDER	6.5%	6.9%	6.7%
		% of Total	4.2%	2.4%	6.7%
Total		Count	291	159	450
		% within AGECAT	64.7%	35.3%	100.0%
		% within GENDER	100.0%	100.0%	100.0%
		% of Total	64.7%	35.3%	100.0%

Table 7. Chi-Square Test: Day of Visit x Gender x Age Category

Chi-Square Test: Day of Visit X Gender X Age Category

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.941[a]	1	.015
N of Valid Cases	879		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.69.

Figure 5. Beneficiary Category (Saturday Visits)

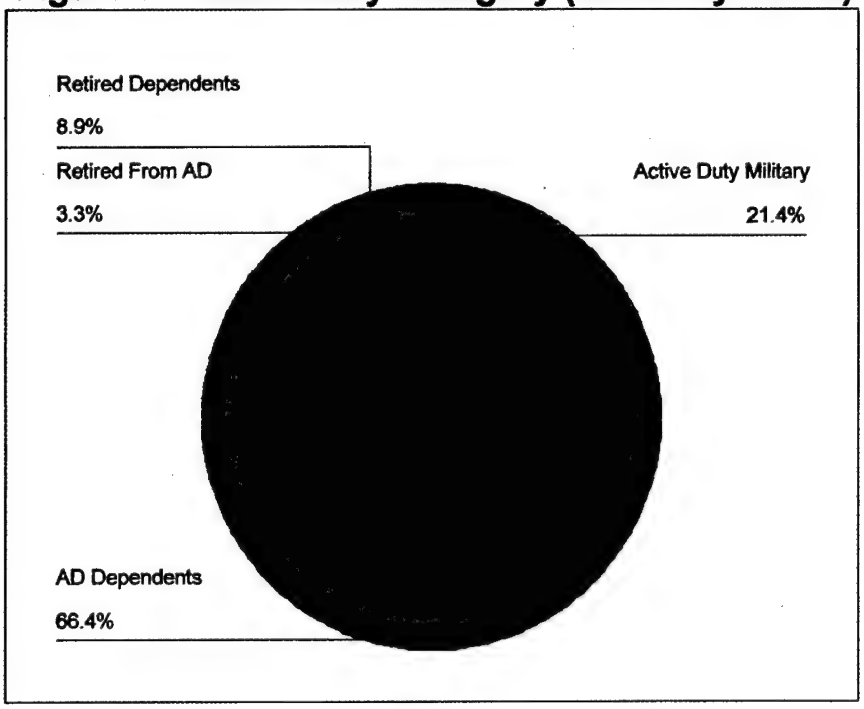

Figure 6. Beneficiary Category (M-F Visits)

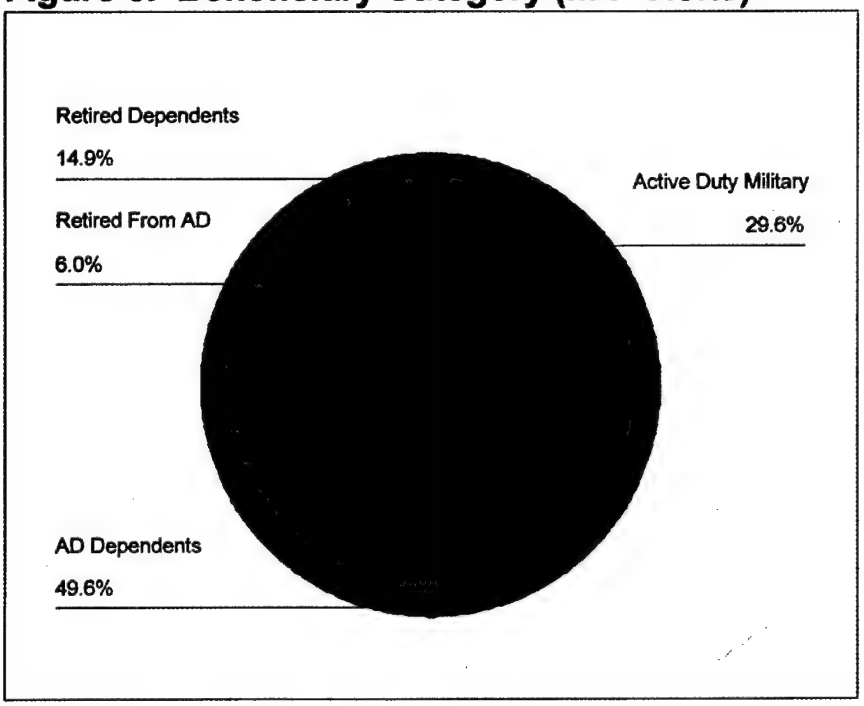

Table 8. Day of Visit x Beneficiary Category

Crosstab

			Beneficiary Category				
			Active Duty Military	Active Duty Depns.	Retired from AD	Retired Depns.	Total
Day of Visit	Saturday	Count	92	285	14	38	429
		Expected Count	109.8	247.9	20.0	51.2	429.0
		% within DAY	21.4%	66.4%	3.3%	8.9%	100.0%
		% within BENCAT	40.9%	56.1%	34.1%	36.2%	48.8%
		% of Total	10.5%	32.4%	1.6%	4.3%	48.8%
	M-F	Count	133	223	27	67	450
		Expected Count	115.2	260.1	21.0	53.8	450.0
		% within DAY	29.6%	49.6%	6.0%	14.9%	100.0%
		% within BENCAT	59.1%	43.9%	65.9%	63.8%	51.2%
		% of Total	15.1%	25.4%	3.1%	7.6%	51.2%
Total		Count	225	508	41	105	879
		Expected Count	225.0	508.0	41.0	105.0	879.0
		% within DAY	25.6%	57.8%	4.7%	11.9%	100.0%
		% within BENCAT	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	25.6%	57.8%	4.7%	11.9%	100.0%

Table 9. Chi-Square Test: Day of Visit x Beneficiary Category

Chi-Square Test: Day of Visit X Beneficiary Category

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.683[a]	3	.000
N of Valid Cases	879		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.01.

Table 10. Top Ten Users by Military Unit Assignment (Saturday Visits)

Unit Code	Unit Description	Frequency	Percent of Sample (N=429)
W2NVAA	Reynolds Army Community Hospital	32	7.5
WD4PAA	226 CS CO	12	2.8
WC7UAA	3 FA HHB III Corps	10	2.3
W2NT01	HHB 1st BN 30th FA	9	2.1
W2NT03	B Btry 1st BN 30th FA	9	2.1
W34T9A	95 AG BN Reception	9	2.1
WA1NT0	17 FA BN (01 HHB 155 SP)	9	2.1
WA1XT0	14 FA BN (01 HHS MLRS)	9	2.1
WD4MAA	588 CS CO	9	2.1
WE8RT0	32 FA BN 6 HHS MLRS	8	1.9

Table 11. Top Ten Users by Military Unit Assignment (M-F Visits)

Unit Code	Unit Description	Frequency	Percent of Sample (N=450)
W0VG03	HHB PS BN USAFACFS	14	3.1
W2NT02	A Btry 1st BN 30th FA	14	3.1
WA1XT0	14 FA BN (01 HHS MLRS)	12	2.7
WD4MAA	588 CS CO	12	2.7
W0VGA2	L E C USAFACFS	10	2.2
W2NT03	B Btry 1st BN 30th FA	9	2.0
WC7UAA	3 FA HHB III Corps	8	1.8
WD4PAA	226 CS CO	8	1.8
W2NVAA	Reynolds Army Community Hospital	8	1.8
W2NT01	HHB 1st BN 30th FA	7	1.6

Table 12. Chi-Square Test: Day of Visit x Military Unit Assignment

Chi-Square Test: Day of Visit X Military Unit Assignment

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	261.426[a]	166	.000
N of Valid Cases	879		

a. 307 cells (91.9%) have expected count less than 5. The minimum expected count is .49.

Figure 7. Rank Category (Saturday Visits)

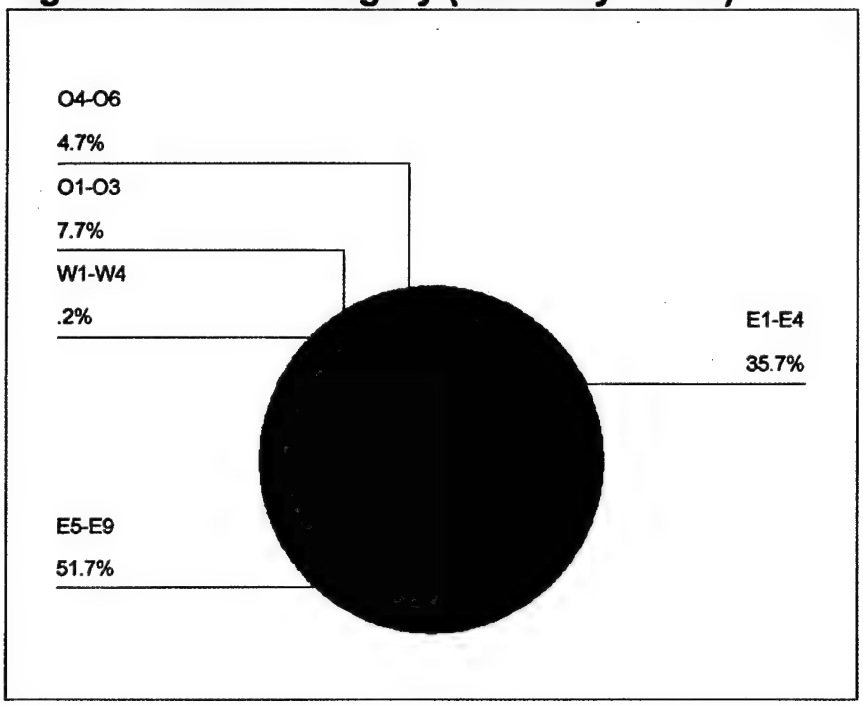

Figure 8. Rank Category (M-F Visits)

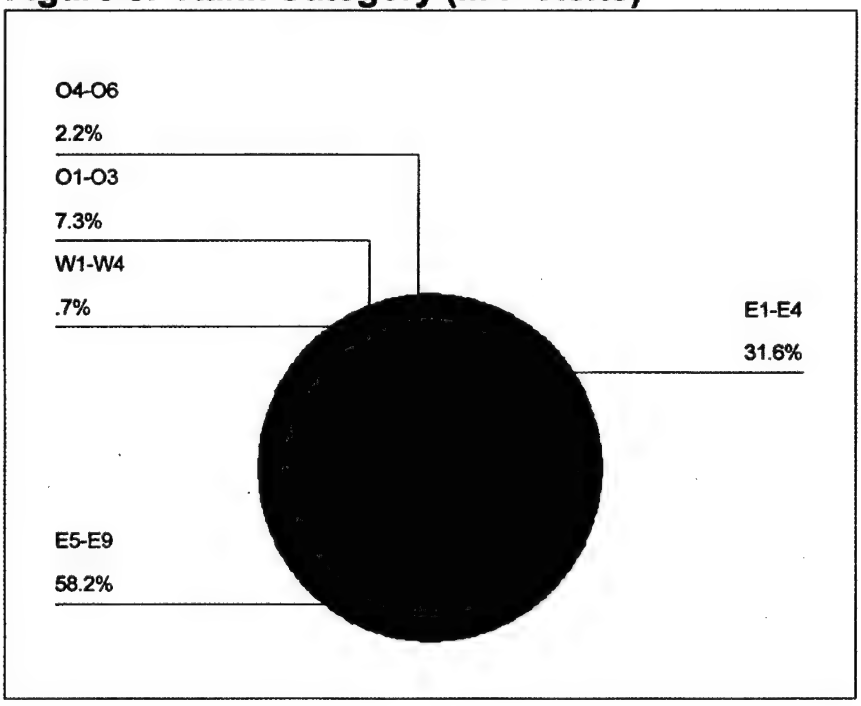

Table 13. Day of Visit x Rank Category

Crosstab

			Rank Category					
			E1-E4	E5-E9	W1-W4	O1-O3	O4-O6	Total
Day of Visit	Saturday	Count	153	222	1	33	20	429
		Expected Count	144.0	236.2	2.0	32.2	14.6	429.0
		% within DAY	35.7%	51.7%	.2%	7.7%	4.7%	100.0%
		% within RANKCAT	51.9%	45.9%	25.0%	50.0%	66.7%	48.8%
		% of Total	17.4%	25.3%	.1%	3.8%	2.3%	48.8%
	M-F	Count	142	262	3	33	10	450
		Expected Count	151.0	247.8	2.0	33.8	15.4	450.0
		% within DAY	31.6%	58.2%	.7%	7.3%	2.2%	100.0%
		% within RANKCAT	48.1%	54.1%	75.0%	50.0%	33.3%	51.2%
		% of Total	16.2%	29.8%	.3%	3.8%	1.1%	51.2%
Total		Count	295	484	4	66	30	879
		Expected Count	295.0	484.0	4.0	66.0	30.0	879.0
		% within DAY	33.6%	55.1%	.5%	7.5%	3.4%	100.0%
		% within RANKCAT	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	33.6%	55.1%	.5%	7.5%	3.4%	100.0%

Table 14. Chi-Square Test: Day of Visit x Rank Category

Chi-Square Test: Day of Visit X Rank Category

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.552[a]	4	.109
N of Valid Cases	879		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 1.95.

Figure 9. Zip Code (Saturday Visits)

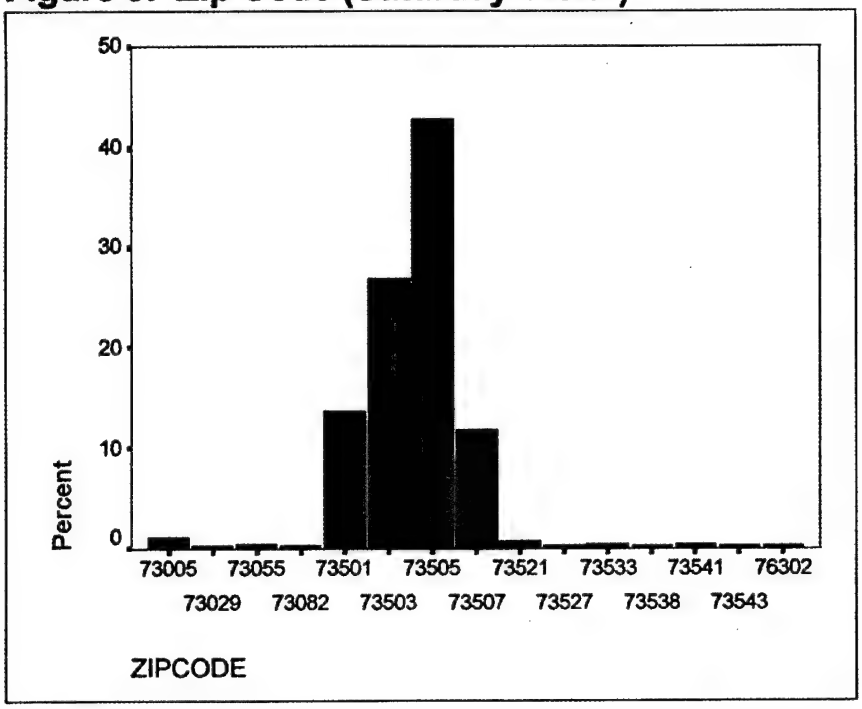

Figure 10. Zip Code (M-F Visits)

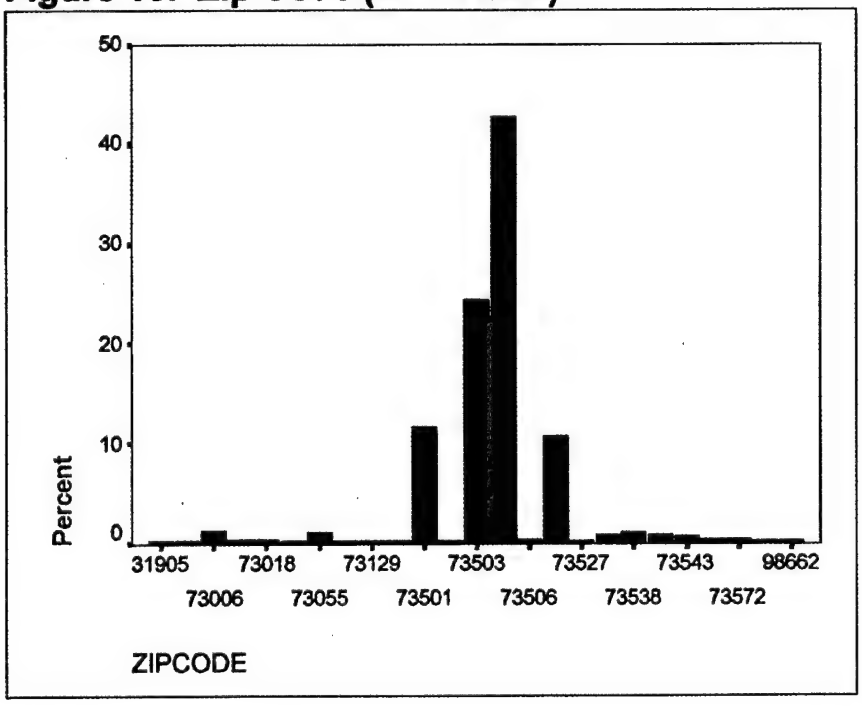

Figure 11. Primary Zip Codes (Saturday Visits)

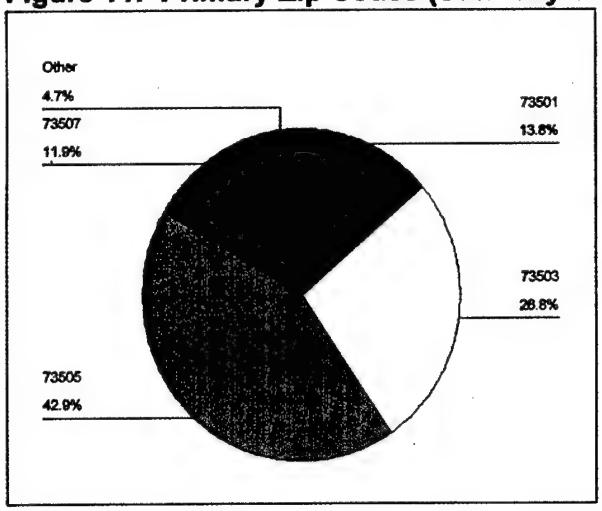

Figure 12. Primary Zip Codes (M-F Visits)

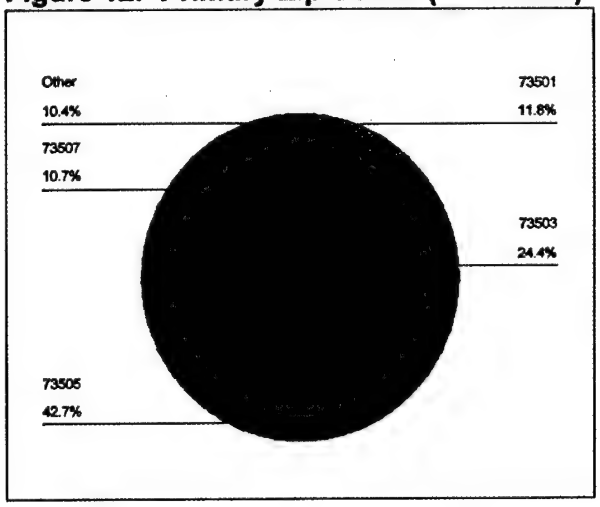

Table 15: Chi-Square Test: Day of Visit x Zip Code

Chi-Square Test: Day of Visit X Zip Code

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	42.502[a]	29	.151
N of Valid Cases	879		

a. 52 cells (86.7%) have expected count less than 5. The minimum expected count is .49.

Figure 13. Enrollment Category (Saturday Visits)

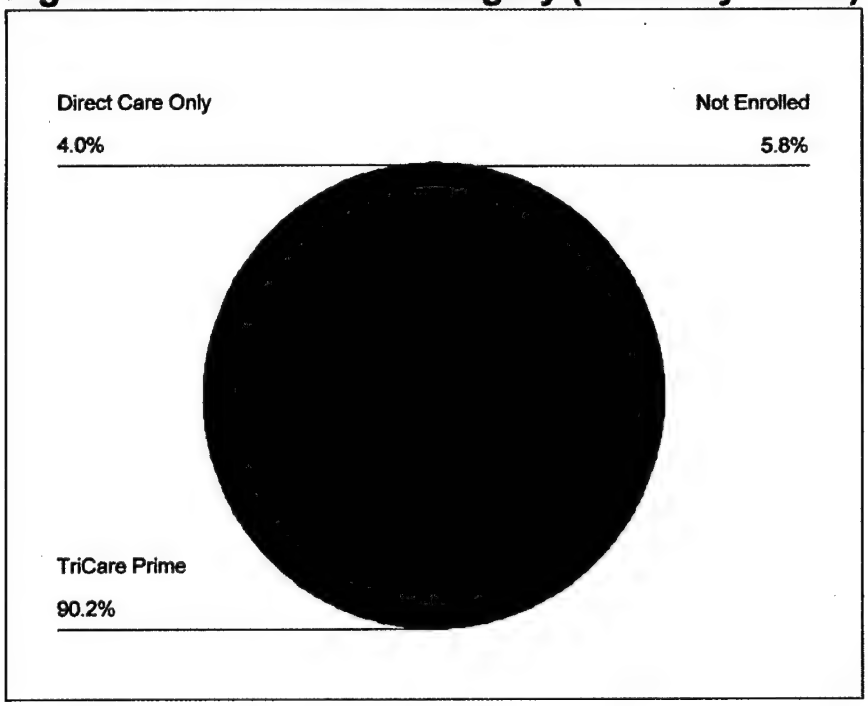

Figure 14. Enrollment Category (M-F Visits)

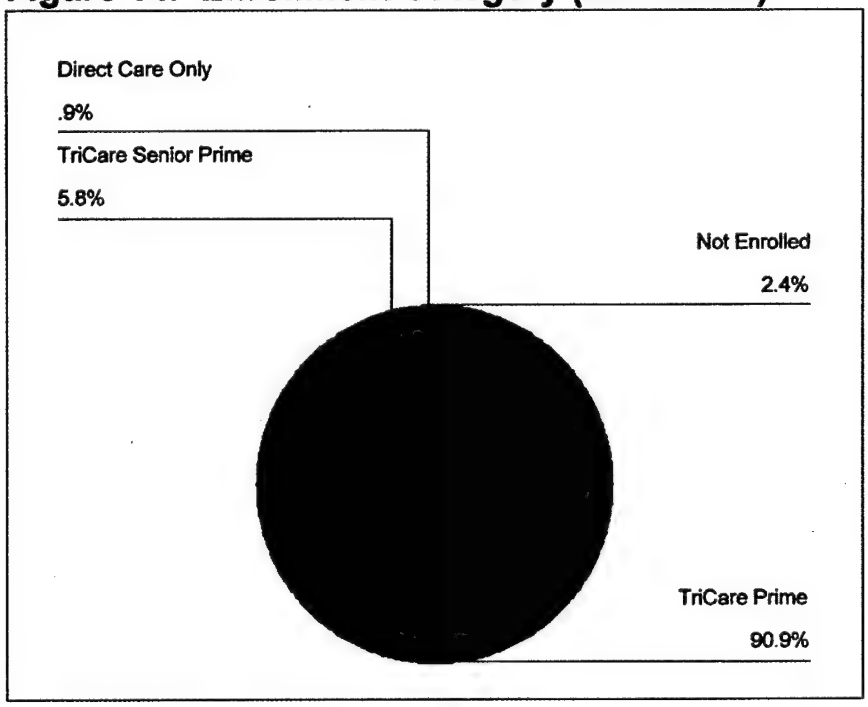

Table 16. Day of Visit x Enrollment Category

Crosstab

			Enrollment Category				
			Not Enrolled	TriCare Prime	TriCare Senior Prime	Direct Care Only	Total
Day of Visit	Saturday	Count	25	387	0	17	429
		Expected Count	17.6	388.5	12.7	10.2	429.0
		% within DAY	5.8%	90.2%	.0%	4.0%	100.0%
		% within ENROLLED	69.4%	48.6%	.0%	81.0%	48.8%
		% of Total	2.8%	44.0%	.0%	1.9%	48.8%
	M-F	Count	11	409	26	4	450
		Expected Count	18.4	407.5	13.3	10.8	450.0
		% within DAY	2.4%	90.9%	5.8%	.9%	100.0%
		% within ENROLLED	30.6%	51.4%	100.0%	19.0%	51.2%
		% of Total	1.3%	46.5%	3.0%	.5%	51.2%
Total		Count	36	796	26	21	879
		Expected Count	36.0	796.0	26.0	21.0	879.0
		% within DAY	4.1%	90.6%	3.0%	2.4%	100.0%
		% within ENROLLED	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	4.1%	90.6%	3.0%	2.4%	100.0%

Table 17. Chi-Square Test: Day of Visit x Enrollment Category

Chi-Square Test: Day of Visit X Enrollment Category

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	39.621[a]	3	.000
N of Valid Cases	879		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.25.

Figure 15. Referral Source (Saturday Visits)

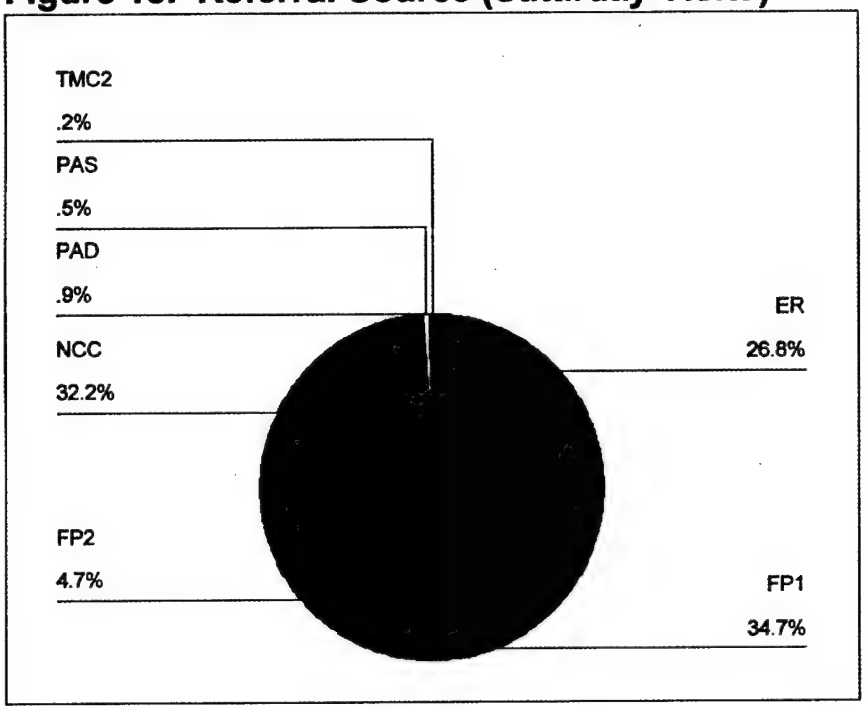

Figure 16. Referral Source (M-F Visits)

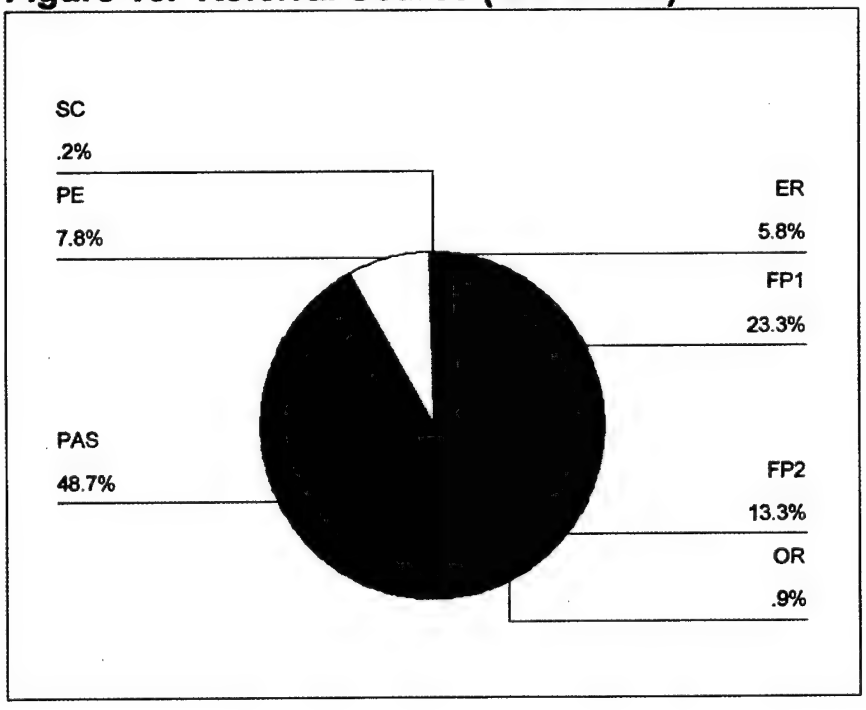

Table 19. Day of Visit x Referral Source

Crosstab

			Referral Source										Total
			ER	FP1	FP2	NCC	OR	PAD	PAS	PE	SC	TMC2	
Day of Visit	Saturday	Count	115	149	20	138	0	4	2	0	0	1	429
		Expected Count	68.8	124.0	39.0	67.4	2.0	2.0	107.9	17.1	.5	.5	429.0
		% within DAY	26.8%	34.7%	4.7%	32.2%	.0%	.9%	.5%	.0%	.0%	.2%	100.0%
		% within REFERRAL	81.6%	58.7%	25.0%	100.0%	.0%	100.0%	.9%	.0%	.0%	100.0%	48.8%
		% of Total	13.1%	17.0%	2.3%	15.7%	.0%	.5%	.2%	.0%	.0%	.1%	48.8%
	M-F	Count	26	105	60	0	4	0	219	35	1	0	450
		Expected Count	72.2	130.0	41.0	70.6	2.0	2.0	113.1	17.9	.5	.5	450.0
		% within DAY	5.8%	23.3%	13.3%	.0%	.9%	.0%	48.7%	7.8%	.2%	.0%	100.0%
		% within REFERRAL	18.4%	41.3%	75.0%	.0%	100.0%	.0%	99.1%	100.0%	100.0%	.0%	51.2%
		% of Total	3.0%	11.9%	6.8%	.0%	.5%	.0%	24.9%	4.0%	.1%	.0%	51.2%
Total		Count	141	254	80	138	4	4	221	35	1	1	879
		Expected Count	141.0	254.0	80.0	138.0	4.0	4.0	221.0	35.0	1.0	1.0	879.0
		% within DAY	16.0%	28.9%	9.1%	15.7%	.5%	.5%	25.1%	4.0%	.1%	.1%	100.0%
		% within REFERRAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	16.0%	28.9%	9.1%	15.7%	.5%	.5%	25.1%	4.0%	.1%	.1%	100.0%

Table 20. Chi-Square Test: Day of Visit x Referral Source

Chi-Square Test: Day of Visit X Referral Source

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	479.644[a]	9	.000
N of Valid Cases	879		

a. 8 cells (40.0%) have expected count less than 5. The minimum expected count is .49.

Figure 17. PCM Category (Saturday Visits)

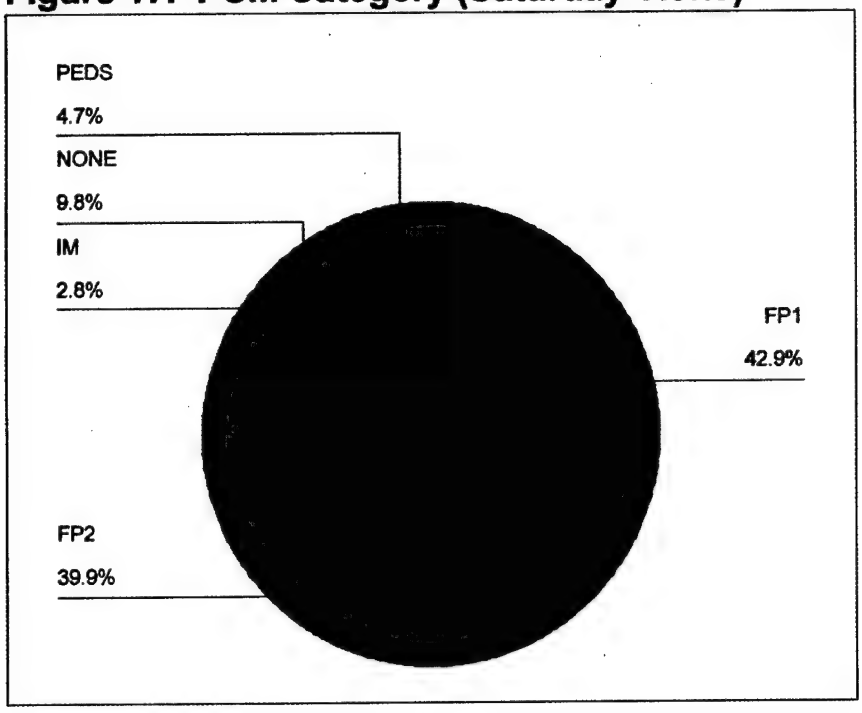

Figure 18. PCM Category (M-F Visits)

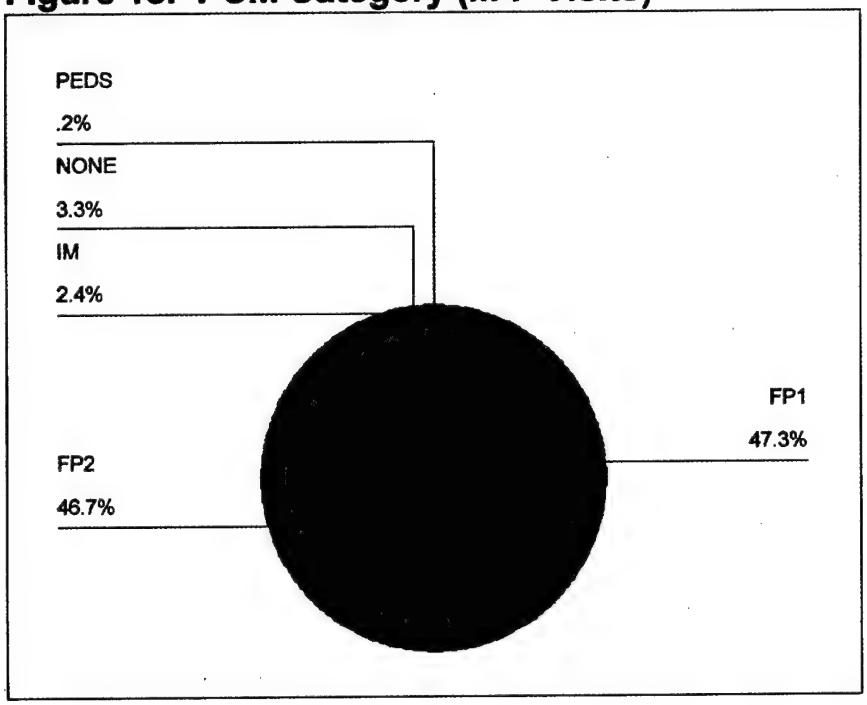

Table 22. Day of Visit x PCM Category

Crosstab

			PCM Category					
			FP1	FP2	IM	NONE	PEDS	Total
Day of Visit	Saturday	Count	184	171	12	42	20	429
		Expected Count	193.8	185.9	11.2	27.8	10.2	429.0
		% within DAY	42.9%	39.9%	2.8%	9.8%	4.7%	100.0%
		% within PCM	46.3%	44.9%	52.2%	73.7%	95.2%	48.8%
		% of Total	20.9%	19.5%	1.4%	4.8%	2.3%	48.8%
	M-F	Count	213	210	11	15	1	450
		Expected Count	203.2	195.1	11.8	29.2	10.8	450.0
		% within DAY	47.3%	46.7%	2.4%	3.3%	.2%	100.0%
		% within PCM	53.7%	55.1%	47.8%	26.3%	4.8%	51.2%
		% of Total	24.2%	23.9%	1.3%	1.7%	.1%	51.2%
Total		Count	397	381	23	57	21	879
		Expected Count	397.0	381.0	23.0	57.0	21.0	879.0
		% within DAY	45.2%	43.3%	2.6%	6.5%	2.4%	100.0%
		% within PCM	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	45.2%	43.3%	2.6%	6.5%	2.4%	100.0%

Table 23. Chi-Square Test: Day of Visit x PCM Category

Chi-Square Test: Day of Visit X PCM Category

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.653[a]	4	.000
N of Valid Cases	879		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.25.

Table 24. Top Five Diagnoses (Saturday Visits)

ICD-9 Code	Diagnosis Description	Frequency	Percent of Sample (N=429)
465.90	Acute Urinary Tract Infection	36	8.4
382.90	Otitis Media	29	6.8
462.00	Acute Pharyngitis	24	5.6
079.99	Unspecified Viral Infection	18	4.2
692.90	Dermatitis	18	4.2

Table 25. Top Five Diagnoses (M-F Visits)

ICD-9 Code	Diagnosis Description	Frequency	Percent of Sample (N=450)
70.00	Routine Physical Exam	54	12
20.20	Routine Infant/ Child Health	43	9.6
22.00	Supervision of Normal First Pregnancy	38	8.4
401.90	Hypertension	36	8
72.30	Gynecological Exam	33	7.3

Table 26. Chi-Square Test: Day of Visit x Diagnosis

Chi-Square Test: Day of Visit X Diagnosis

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	482.428[a]	167	.000
N of Valid Cases	879		

a. 300 cells (89.3%) have expected count less than 5. The minimum expected count is .49.

Discussion

Age Category. Figures 1 and 2 reveal that almost four times as many children between the ages of one and ten (117 v. 34) attended the Saturday FPC, while three times as many seniors age 65 and older (30 v. 10) attended the M-F FPC. Furthermore, almost 70% of the patient visits to the M-F FPC were represented in the 17-50 year age category while only 54% of the Saturday FPC visits were represented in this category. Tables 1 and 2 reveal that these differences are statistically significant ($X^2 = 70.1$; df = 5; $p<.0001$) and indicate that a patient's Age Category is a contributing factor with respect to Day of Visit. Specifically, of the 151 children age 1-10 who sought care, 117 were taken to the Saturday FPC over the M-F FPC. Conversely, of the 40 seniors who sought care, 30 presented to the M-F FPC while only 10 presented to the Saturday FPC. As reflected in the p value above, the odds of these occurrences being due to chance alone is less than 1 in 10,000.

This information is important because it tells us that the Saturday FPC is a portal entry for specific age categories of patients, namely the 1-10 year age category. Thus, physician staffing of the Saturday FPC should be, in part, organized to support this patient population and focused on the disease processes most likely to occur within this age category. This information also indicates that parents are bringing their children to RACH on Saturdays for an appointment with a PCM, rather than using the M-F FPC. This raises several additional questions. Is there a problem with respect to obtaining an appointment during normal duty hours? Are parents more able to bring their children on Saturday because either both spouses work during the week, or because the parent is a single working parent and can not get time off during the week to keep an appointment? Is Saturday just more convenient than normal duty hours? Is the perceived quality of care better on Saturday than during normal duty hours? Do the disease manifestations that

present for this population require treatment on Saturday, or can they wait until the next normal duty day?

The answers to these additional questions are beyond the scope of this study but were partially addressed in a study by Plauth, & Pearson (1998) concerning urgent care utilization within a HMO. The researchers found that 64% of patients who used either the walk-in clinic or ER indicated they needed to be seen immediately, 47% sought care when the primary care offices were closed, 27% cited the constraints of work or childcare, and 25% said they were unable to get an appointment with their primary care physician. Almost half of the patients said they would have preferred to see their primary care physician within a day or two rather than seeking care at the ER. Although this study focused on ER utilization, it does provide clues with respect to utilization of other services, such as the Saturday FPC, in the absence of actual or perceived access to care during the week. Specific answers, however, to these additional questions requires further research and could be addressed by surveying patients and parents through questionnaire following a Saturday FPC encounter. Thus, the initial finding that a patient's age category is significant with respect to day of visit is an important first step in refining and marketing our services that impact these specific age categories of patients.

Gender. Although Figures 3 and 4 reveal that both Saturday FPC and M-F FPC visits are predominately composed of females (56.9% and 64.7% respectively), the SPSS crosstabulations and X^2 analysis (Tables 3 and 4 respectively) reveal that this difference is statistically significant ($X^2 = 5.6$; $df = 1$; $p<.018$) with respect to which Gender can be attributed to which Day of Visit. Thus, on average, more male patients can be attributed to representing the Saturday FPC population when compared to the male patients who compose the M-F FPC population. Similarly, more female patients can be attributed to representing the M-F FPC population when

compared to females who compose the Saturday FPC population. While this finding is not as significant as the patient's age category, the odds of this occurrence being due to chance alone is less than 2 in 100.

This is an important finding because it indicates that more male patients (185 v. 159) sought care in the Saturday FPC than in the M-F FPC and that additional samplings would yield statistically similar results. Upon further analysis, a more specific patient distribution by age category and gender for the Saturday FPC (Table 5) reveals that male visits out numbered female visits by 18% for the 1-10 year age category and by 11.2% for children under the age of one. Female visits, however, out numbered male visits for the remaining four age categories with almost 30% more females represented in the 17-50 year age category and 50% more females represented in the 51-64 year age category. The patient distribution by age category and gender for the M-F FPC (Table 6) reveals that only male children under the age of one were more likely to present to the M-F FPC, while all remaining age categories were more represented among the female gender. Upon additional X^2 analysis, Table 7 indicates that only male patients in the 1-10 year age category revealed statistical significance when Gender by Age Category was compared to Day of Visit, hence attributing to the use of the Saturday FPC over the M-F FPC by males of this age category ($X^2 = 5.9$; $df = 1$; $p<.015$). This finding raises an additional question, perhaps, where one might question why more male 1-10 year old children present to the Saturday FPC.

Gender and social relationships are believed to have a strong influence on health care attitudes and behavior. A study by Norcross, Ramirez, & Palinkas (1996) revealed that women exert an important influence on the decisions of men and their children to seek health care. Men were 2.7 times more likely than women to be influenced to seek health care by a member of the

opposite sex, while married patients were 2.4 times more likely than unmarried patients to be influenced by a member of the opposite sex. Norcross et. al also discuss that women are more likely than men to seek and utilize health care, possess greater knowledge about health, remain compliant with a therapeutic regimen, and monitor the health and safety of their children in addition to their own health. A potential weakness of the current study with respect to addressing this assertion is that the gender of the spouse who brought the child to RACH for care could not be determined. Only the child's gender and beneficiary category were ascertained through CHCS. Thus, although it is widely assumed, it can not be proven through this study that mothers are more or less likely to bring their sick male children age 1-10 to the Saturday FPC over the M-F FPC. Knowing this information might be helpful in targeting spouses through either the military unit or family support group depending on which gender typically brings the child into the Saturday FPC for care.

Beneficiary Category. Figures 5 and 6 reveal that almost 17% more AD dependents used the Saturday FPC, while 6% more retired dependents used the M-F FPC. Almost two times as many individuals retired from AD used the M-F FPC over the Saturday FPC, while slightly more than 8% of AD military sought care through an appointment during normal duty hours. The crosstabulations and X^2 analysis (Tables 8 and 9 respectively) reveal that these differences are statistically significant ($X^2 = 26.7$; $df = 3$; $p<.0001$) with respect to the patient's Beneficiary Category contributing to Day of Visit.

These findings are very important since the patient's beneficiary category actually depicts who is using the Saturday FPC. The increased percentage of AD dependents using the Saturday FPC are consistent with the findings above with respect to Age Category and Gender and add validity to the analysis of both variables. However, when the various beneficiary categories were

further differentiated according to Gender and Day of Visit, a number of additional findings were encountered. Of the soldiers who used the Saturday FPC, three times as many male soldiers used the Saturday FPC than female soldiers (69 v. 23). Of the soldiers who used the M-F FPC, slightly less than twice as many male soldiers used the M-F FPC than female soldiers (87 v. 46). A majority of female AD dependents age 17-50 used both the Saturday and M-F FPC (78% v. 61.5%), but a significantly higher number of male AD dependents (98 v. 40) used the Saturday FPC over the M-F FPC ($X^2 = 17.1$; df = 1; $p<.0001$). When the male AD dependent population using the Saturday FPC was further differentiated according to Age Category, 67 of 98 (68.4%) were in the 1-10 year age category which again verifies the findings described above for the Age Category and Gender independent variables. Finally, twice as many retired AD men (26 v. 13) and twice as many female dependents of retirees (61 v. 33) used the M-F FPC over the Saturday FPC.

The researcher believes these differences can be explained, in part, through a concept referred to as the time cost of obtaining medical care. The theory is based on the premise that the quantity of health care demanded will vary inversely with the total per unit cost. Thus when medical care is provided as an entitlement through the military at no out-of-pocket expense to the consumer, variations in quantity demanded will be determined by variations in time costs (Jacobs, 1991). In this sense, time cost is what personal or monetary value the beneficiary places on his or her time. For working spouses and AD soldiers, this could translate into lost wages or unnecessary/ unavailable time away from the unit when the FPC is used during normal duty hours rather than on Saturdays. This may explain why more female AD dependents age 17-50 and male AD soldiers age 17-50 used the Saturday FPC over the M-F FPC. Although the parents' gender and employment status can not be confirmed with data obtained in this study, the

time cost concept may also account for why parents of male children age 1-10 brought their children to the Saturday FPC over the M-F FPC. In other cases, however, the type of medical procedure required will dictate whether the soldier or other beneficiary is provided either an appointment during the week or a same day appointment on Saturday. This issue will be addressed again during discussion of the Diagnosis independent variable and its effect on Day of Visit. Finally, individuals retired from AD and their dependents may have more time during the normal duty week to seek care at the M-F FPC, particularly if they are not employed or engaged in other activities within the community. This could explain why a higher percentage of these beneficiaries used the M-F FPC over the Saturday FPC, however this assertion remains subject to the same circumstances stated above with respect to the nature of the medical procedure(s) required or the patient's diagnosis.

Military Unit Assignment. Tables 10 and 11 reveal the top ten military units who used the Saturday FPC and M-F FPC most frequently. Interestingly, members of Reynolds Army Community Hospital (RACH) ranked #1, representing 7.5% of the Saturday FPC user population, almost three times more than the next ranking unit. RACH also ranked in the top nine for M-F FPC use, but represented only 1.8% of the M-F FPC user population. Members of the 226 Combat Support Company; Headquarters & Headquarters Battery, 3rd Field Artillery; and B Battery, 1st Battalion, 30th Field Artillery were among the top ten units for both populations and used the Saturday FPC slightly more than the M-F FPC by margins of 1%, 0.5%, and 0.1% respectively. The 588 Combat Support Company used the M-F FPC slightly more by 0.6%. The crosstabulations and X^2 analysis (Table 12) for all units reveals that these differences are statistically significant ($X^2 = 261.4$; df = 166; $p<.0001$) with respect to the patient's Military Unit Assignment contributing to Day of Visit. Although the frequency

differences listed above appear subtle, 94 different units (i.e., categories) with frequency counts as high as six to eight per unit used either the Saturday FPC or M-F FPC. While these units did not contribute to being top ten users, they did impact the statistical analysis with respect to determining which unit used the Saturday FPC over the M-F FPC.

There are 285 military units whose members and dependents are eligible for care at RACH. Of these units, members and dependents from 167 (59%) sought care during the course of this study. Of these 167 units, 73 (43.7%) used both the Saturday FPC and M-F FPC, 51 (30.5%) used only the M-F FPC, and 43 (25.8%) used only the Saturday FPC. Thus, of the 167 different military units represented among the two sample populations, 116 (69.5%) used the Saturday FPC on at least one occasion. Finally, of the 285 total units, 116 (41%) had an opportunity to visit the Saturday FPC on at least one occasion within the first five months of implementing the Saturday FPC as part of the Primary Care Initiative.

These are very important findings because they imply that a fair percentage of individuals outside the hospital know that the Saturday FPC exists and are using it, even though the frequency of use per military unit is fairly low. Therefore, attempts to discontinue the Saturday FPC would likely impact RACH's beneficiary population far beyond those assigned to RACH who use the service. As a military unit, RACH's lower use of the M-F FPC may also suggest that the Saturday FPC is a valuable resource for it's own members. For example, the Saturday FPC may serve as a portal entry for single soldiers with children who may not have an opportunity during the week to keep an appointment. A study by Finch (1997) concerning changes in the workplace revealed that mothers had expressed concern at their inability to comply with their child's medical appointment. Setting up a Saturday morning child health clinic at the College Road Practice in Maidstone London appealed to 49% of the working

mothers (who composed 69% of the working population) as an alternative source of health care. After one year, 53% of working mothers used the service on at least one occasion. Interestingly, the medical staff found the Saturday clinic less pressured and more fulfilling as patients were given more time during their scheduled appointment.

When RACH's Saturday visits were further differentiated according to Age Category and Gender, four were for children under the age of one, eight were for children age 1-10, one was for a female adolescent age 11-16, and nineteen were for females age 17-50. While this represents only 7.5% of the Saturday FPC user population, it also represents 32 visits that otherwise might have occurred in the ER had the Saturday FPC not been available.

Military Rank. Figures 7 and 8 reveal that the majority of users for both the Saturday FPC and M-F FPC are non-commissioned officers from the rank of E5-E9 (and their dependents) at 51.7% and 58.2% respectively. Lower enlisted personnel from the rank of E1-E4 (and their dependents) represented almost 36% of the Saturday FPC user population, while this same rank category represented almost 32% of the M-F FPC user population. These findings closely mirror those found in Gamerl's 1995 study of ER utilization where almost 89% of users fell into the two enlisted categories described above, while commissioned officers attributed to only 7.5% of users.

In the case AD dependents, retirees, and dependents of retirees, the CHCS demographic template indicated only the sponsor's rank and was therefore used to designate rank affiliation for these individuals. This represents a potential weakness of this variable as a validity check, since it combined rank affiliation associated with dependent status with rank associated with active duty status. Thus, for this particular variable, AD soldiers in particular could not be separated out and compared to Day of Visit to verify the earlier findings associated with

Beneficiary Category v. Day of Visit. Hence the comparison of Military Rank v. Day of Visit was made with respect to the entire family's rank affiliation with either the AD or retired military member.

Finally, negligible differences were noted among the warrant officer and junior commissioned officer ranks, although slightly over twice as many senior commissioned officers from the rank of O4-O6 (and their dependents) used the Saturday FPC over the M-F FPC. The crosstabulations and X^2 analysis (Tables 13 and 14 respectively), however, did not reveal that these differences were statistically significant ($X^2 = 7.6$; df = 4; $p<.109$) with respect to Military Rank contributing to Day of Visit. Thus, regardless of the patient's military rank category or rank affiliation in the case of dependents, patients were equally likely to present to either the Saturday FPC or M-F FPC for care.

Zip Code. Figures 9 and 10 illustrate the frequency distribution for all zip codes represented in the Saturday and M-F FPC populations respectively. Figures 11 and 12 further illustrate the primary zip codes prevalent among the two populations. Zip codes representing less than 2% of the total population within each sample were grouped as Other. Ft. Sill is represented by zip code 73503, all other zip codes represent users who reside off the military installation. The Northeast area of Lawton is represented by zip code 73507, the Southeast by zip code 73501, and the Northwest by zip code 73505. Figures 9-12 reveal that the majority of Saturday FPC and M-F FPC users reside off the installation (73% and 76% respectively). Of those who live on the installation, use of the Saturday FPC over the M-F FPC was only slightly higher by 2.4%. Smaller variances (less than 2%) existed among the remaining zip codes external to Ft. Sill. The crosstabulations and X^2 analysis (Table 15) did not reveal that these differences were statistically significant ($X^2 = 42.5$; df = 29; $p<.151$) with respect to zip code

contributing to Day of Visit. Thus, regardless of whether the patient lived on or off the military installation, he or she was equally likely to present to either the Saturday FPC or M-F FPC for care.

Enrollment Status. Figures 13 and 14 reveal that patients enrolled for direct care only represented 4% of the Saturday FPC visits compared to less than 1% of the M-F FPC visits. Additionally, patients not enrolled with TRICARE represented almost 6% of the Saturday FPC user population compared to only 2.4% of the M-F FPC user population. Finally, approximately 6% of the M-F FPC users were enrolled with the TRICARE Senior Prime program, while no users of the Saturday FPC were enrolled with this program. The crosstabulations and X^2 analysis (Tables 16 and 17 respectively) reveal that these differences are statistically significant ($X^2 = 39.6$; df = 3; $p<.0001$) with respect to the patient's Enrollment Status contributing to Day of Visit.

Table 16 further illustrates that of the individuals not enrolled, almost 70% sought care at the Saturday FPC. Similarly, of the individuals enrolled to direct care only, 81% sought care at the Saturday FPC. When these users were further differentiated according to Age Category and compared to Day of Visit, a number of interesting findings were made. Children under the age of one who were not enrolled were more likely to use the Saturday FPC ($X^2 = 4.5$; df = 1; $p<.035$), patients age 17-50 who were not enrolled were more likely to use the Saturday FPC ($X^2 = 11.7$; df = 3; $p<.008$), patients age 51-64 who were enrolled to TRICARE Prime were more likely to use the M-F FPC ($X^2 = 6.9$; df = 2; $p<.031$), and patients 65+ who were enrolled to direct care only were more likely to use the Saturday FPC ($X^2 = 24.8$; df = 2; $p<.0001$). Also noteworthy was the observation that 10 of 17 (59%) direct care only users who used the Saturday FPC were age 65+ and not enrolled to TRICARE Senior Prime.

Table 18. Chi-Square Test: Day of Visit x Enrollment Category x Age Category

Day of Visit x Enrollment Category x Age Category

Age Category		Value	df	Asymp. Sig. (2-sided)
Under 1 Year Old	Pearson Chi-Square	4.463[b]	1	.035
	N of Valid Cases	74		
Age 1-10	Pearson Chi-Square	.293[c]	1	.589
	N of Valid Cases	151		
Age 11-16	Pearson Chi-Square	[d]		
	N of Valid Cases	26		
Age 17-50	Pearson Chi-Square	11.700[e]	3	.008
	N of Valid Cases	536		
Age 51-64	Pearson Chi-Square	6.933[f]	2	.031
	N of Valid Cases	52		
Age 65+	Pearson Chi-Square	24.762[g]	2	.000
	N of Valid Cases	40		

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.95.

c. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .23.

d. No statistics are computed because ENROLLED is a constant.

e. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .43.

f. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .38.

g. 3 cells (50.0%) have expected count less than 5. The minimum expected count is .25.

Although the majority of RACHs beneficiaries are enrolled with TRICARE Prime, nearly 10% of all the Saturday FPC visits that occurred during the first five months of business were made by non-enrollees. These findings, along with those listed above, clearly suggest that the Saturday FPC also plays a role as an alternative source of care for those who may not be able to access the M-F FPC due to their enrollment status. More specifically, it may be serving as a portal entry for seniors age 65+ that either choose not to enroll or who failed to be accepted into the TRICARE Senior Prime program. It is also likely that a fair percentage of these individuals

would seek care in the ER, most likely as a level III non-emergent patient, if the Saturday FPC were not available. A study by Helmold (1982) reported that an extended hours program at Carney Hospital in Boston replaced the ER as the focus of non-emergent care on evenings, weekends, and holidays. The pilot program was initially structured to support pediatric outpatients but expanded during the second year to include adult medicine services. The program shifted 10% of its pediatric workload from the ER during its first year, and 28% of its adult medicine services during the second year. The program ultimately reduced the ER census, fee-for-service physician revenue, and indirect cost per patient visit.

Finally, the implication that access to the M-F FPC may be linked to enrollment status and that non-enrolled patients are seeking care on Saturday suggests that the appointment scheduling process for the Saturday FPC may be more lenient than that of the M-F FPC. While this assertion is beyond the scope of this study, it does raise interesting questions with respect to how patients are referred for a Saturday FPC appointment.

Referral Source. Figures 15 and 16 reveal that almost 60% of the appointments for the Saturday FPC were made through the NCC (32.2%) or the ER (26.8%). Interestingly, of the M-F FPC sample population (N= 450), zero appointments were made through the NCC and only 5.8% were made through the ER, while the central PAS system performed almost 50% of the appointment scheduling. Of the referrals made from ER to either the Saturday FPC or the M-F FPC, 115 of 141 (82%) were made to the Saturday FPC. Similarly, 138 of 138 (100%) of the NCC referrals were made to the Saturday FPC, while 219 of 221 (99%) of the PAS referrals were made to the M-F FPC. Thus, the data reflects that ER and NCC referrals were associated with Saturday FPC use, while PAS was associated with M-F FPC use. The crosstabulations and X^2 analysis (Tables 19 and 20 respectively) reveal that these differences are statistically

significant ($X^2 = 479.6$; df = 9; $p<.0001$) with respect to Referral Source contributing to Day of Visit.

When the Saturday FPC appointments made through the NCC and ER were further differentiated according to the patient's Age Category and Gender (Table 21), insight was gained with respect to who was able to avoid seeking care in the ER as a result of being able to obtain a same day appointment on Saturday.

Table 21. Patient Age Category and Gender Distribution by Referral Source.

Age Category	# Referred	Referral Source
Under Age 1	11 14	ER NCC
Age 1-10	26 (18 Male, 8 Female) 53	ER NCC
Age 11-16	4 9	ER NCC
Age 17-50	66 55 (11 Male, 44 Female)	ER NCC
Age 51-64	3 2	ER NCC
Age 65+	8 (6 Male, 2 Female) 2 **TOTAL = 253**	ER NCC

This represents a fair number of patient visits that the ER was able to avoid over the five month course of this study, given that all 253 would be willing to wait and be seen in the ER barring the existence of a Saturday FPC. When averaged, this represents approximately 51 visits per month or 2.3% of the ERs monthly workload. Interestingly, in an ongoing study of ER utilization by the business analysis branch of RACH, non-emergent use of the ER remained relatively constant at 3% from June through October 1998. This implies that while the Saturday FPC offers an additional and more appropriate means to address non-emergent care, its direct impact on ER utilization throughout the course of this study was negligible. This finding refutes

the initial claim that the number of ER patients should decrease an average of 40% when access to the appropriate level of care in a clinic setting is provided via the Saturday FPC.

These findings are important because they shed light on how people are accessing the Saturday FPC. Additionally, they imply the alternative routes of care patient's may access if the Saturday FPC did not exist. From the findings based on enrollment status, it is plausible that seniors age 65+ who are not enrolled to TRICARE Senior Prime would end up seeking care in the ER since it appears the ER is referring them to the Saturday FPC. Similarly, the ER would probably experience an increased number of male children age 1-10 and female adults age 17-50 seeking care for conditions likely to be managed more appropriately through a FP physician.

The findings also shed light on how the NCC functions to coordinate care for RACH's beneficiaries. From the data, it is clear that the NCC channels a fair percentage of patients (32%) to the Saturday FPC to acquire the right care at the right time in the right place. This is important because it illustrates the role of the NCC within the construct of the Primary Care Initiative.

Alternatively, a fair percentage of patients (34.7%) are by passing the NCC and obtaining their Saturday appointment directly from FP1. A potential weakness of analyzing this particular referral category within the Referral Source variable, however, is that the researcher can not determine whether the FP1 clerk booked the appointment via the phone or in person from a patient who simply walked in. The CHCS ad-hoc report did not make this differentiation. Nevertheless, this observation remains important because one could argue that the NCC's role for this particular function could be performed exclusively through FP1 even though the number of self-referrals by patients might increase.

PCM Assignment. Figures 17 and 18 reveal that almost five times the number of beneficiaries assigned to PEDS used the Saturday FPC over the M-F FPC. In addition, three times the number of beneficiaries who were not assigned to a PCM used the Saturday FPC over the M-F FPC. The crosstabulations and X^2 analysis (Tables 22 and 23 respectively) reveal that these differences are statistically significant ($X^2 = 35.7$; $df = 4$; $p<.0001$) with respect to PCM Assignment contributing to Day of Visit.

These findings are validated through earlier findings with respect to Age Category and Enrollment Status. This information may be helpful in planning the physician staffing of the Saturday FPC, for example, by scheduling more pediatricians as PCMs than internal medicine physicians since more patients assigned to PEDS appear to be attending the Saturday FPC. A positive finding with respect to patients categorized as having no PCM assigned is that they appear to be seeking and obtaining primary care on Saturdays. This is good for patients since care can be coordinated and followed by the PCM as opposed to the episodic approach typically encountered via the ER. Unfortunately this practice will negatively impact RACH from a financial perspective when the MHS moves to funding health care operations based strictly on enrollment. In this circumstance, RACH would not be prospectively paid for the true number of beneficiaries seeking care. As such, almost 10% of the Saturday FPC user population would be considered non-covered lives and be receiving services outside the parameters for which funding is provided.

Diagnosis. Tables 24 and 25 reveal the top five diagnoses for users of the Saturday FPC and M-F FPC respectively. All of the Saturday FPC leading diagnoses are suggestive of those illnesses which commonly occur in younger patients. The crosstabulations and X^2 analysis

(Table 26) for all diagnoses reveals that these differences are statistically significant ($X^2 = 482.4$; df = 167; p<.0001) with respect to the patient's Diagnosis contributing to Day of Visit.

In addition, three of five of the leading diagnoses for the M-F FPC (routine physical exam, routine infant/ child health, and hypertension) are consistent with results obtained from the business analysis branch of RACH when analysts measured the top five outpatient diagnoses for FP1 and FP2 from October 1, 1997 through March 31, 1998. In this particular study, analysts measured raw counts and ranked the diagnoses in descending order as follows: routine medical exam (4,177), hypertension (3,632), acute urinary tract infection (2,428), routine infant or child health (1,038), and otitis media (1,023).

Finally, when the top five diagnoses for Saturday FPC users were further differentiated by Age Category and Gender, earlier findings with respect to age and gender utilization were validated. Males age 1-10 are clearly represented in all the leading diagnoses. Table 27 below lends additional insight with respect to who is using the Saturday FPC and for what reason.

Table 27. Patient Age Category and Gender Distribution by Diagnosis

Acute Urinary Tract Infection (465.90)	Female	Male
Under Age 1	3	2
Age 1-10	6	10
Age 11-16	1	1
Age 17-50	7	5
Age 51-64	0	1
Age 65+	0	0
Otitis Media (382.90)		
Under Age 1	5	6
Age 1-10	4	9
Age 11-16	0	0
Age 17-50	2	2
Age 51-64	1	0
Age 65+	0	0

Acute Pharyngitis (462.00)		
Under Age 1	0	0
Age 1-10	7	7
Age 11-16	0	1
Age 17-50	6	3
Age 51-64	0	0
Age 65+	0	0
Unspecified Viral Infection (079.99)		
Under Age 1	2	2
Age 1-10	2	7
Age 11-16	0	0
Age 17-50	2	3
Age 51-64	0	0
Age 65+	0	0
Dermatitis (692.90)		
Under Age 1	0	0
Age 1-10	4	5
Age 11-16	1	1
Age 17-50	1	4
Age 51-64	1	1
Age 65+	0	0

Finally, it is noteworthy to mention that 7.2% of the diagnosis data collected through ADS for the Saturday FPC were missing a corresponding ICD-9 code. This occurred in only 1.8% of the M-F FPC data. Upon review, this occurred because the ADS encounter forms were simply missing a determination by the health care provider as to the patient's diagnosis for that particular outpatient visit. This is an important finding since Medicare and other third party payers reimburse for services based on an accurate and complete outpatient encounter form. Since RACH is a demonstration site for Medicare reimbursement, the process of coding these forms completely will impact RACHs ability to adequately collect for medical services rendered to its dual eligible retired beneficiaries. For purposes of this study, the researcher replaced these codes with an artificial code of 00.00 and eliminated this category from the X^2 analysis to

remove any potential bias from the statistical evaluation of Diagnosis v. Day of Visit. This does, however, present a potential weakness of the study with respect to analyzing the descriptive statistics for this variable since 7.2% of the data can not be categorized across the remaining diagnoses.

Conclusions and Recommendations

Conclusions

This study was developed to determine what type of patient uses the Saturday FPC. The study had two primary objectives. First, to establish a patient profile using descriptive statistics that reflects the type of patient who uses the Saturday FPC. Second, to determine if this patient profile differs from that of patients who use the M-F FPC. The study was based on three separate quantitative analyses.

The first analysis evaluated the Saturday FPC user population (N= 429) with respect to ten independent variables: Age Category, Gender, Beneficiary Category, Military Unit Assignment, Military Rank, Zip Code, Enrollment Status, Referral Source, PCM Assignment, and Diagnosis. The second analysis evaluated the M-F FPC user population (N= 450) with respect to the same independent variables. The third analysis compared these user profiles using an inferential statistical test called the Chi Square (X^2) to determine if statistically significant differences exist between the independent variables that can attribute to or account for whether a patient used the Saturday FPC or the M-F FPC.

The alternate hypothesis (H_a) was supported for eight of the ten independent variables since the X^2 revealed that differences in Age Category, Gender, Beneficiary Category, Military Unit of Assignment, Enrollment Status, Referral Source, PCM Assignment, and Diagnosis between the two populations were statistically significant and attributed to or influenced whether

a patient used the Saturday or the M-F FPC. The no difference model or null hypothesis (H_o) was upheld for two of the independent variables. A patient's Military Rank affiliation and Zip Code were not significant contributing factors with respect to whether patients used the Saturday or the M-F FPC.

In particular, the study revealed that the users of the Saturday FPC were predominantly female AD dependents age 17-50 (40.4%) and children between the ages of one and ten (27.3%). Specifically, male children age 1-10 were more likely to use the Saturday FPC than the M-F FPC ($X^2 = 5.9$; df = 1; $p<.015$). The majority of the beneficiaries served were spouses and children of active duty service members (66%) while only 9% were spouses and children of retired service members ($X^2 = 26.7$; df = 3; $p<.0001$). A fair percentage (7.5%) of Saturday FPC users are assigned to RACH, indicating the potential value of this service to its own members. Of the remaining 166 military units that used medical services throughout the course of this study, 69.5% used the Saturday FPC on at least one occasion. This represents the potential value to RACHs external customers, and serves to illustrate how many different unit members have knowledge of the Saturday FPC. Although military rank did not significantly influence whether or not a patient used the Saturday FPC over the M-F FPC, male soldiers used the Saturday FPC three times more frequently than female soldiers. Patient's who live on the military installation did not use the Saturday FPC significantly more than the M-F FPC, however 17.4% of these users were not enrolled in TRICARE. More specifically, children under the age of one who were not enrolled were more likely to use the Saturday FPC ($X^2 = 4.5$; df = 1; $p<.035$), patients age 17-50 who were not enrolled were more likely to use the Saturday FPC ($X^2 = 11.7$; df = 3; $p<.008$), patients age 51-64 who were enrolled to TRICARE Prime were more likely to use the M-F FPC ($X^2 = 6.9$; df = 2; $p<.031$), and patients 65+ who were enrolled to direct care only were

more likely to use the Saturday FPC ($X^2 = 24.8$; df = 2; $p<.0001$). Additionally, 59% of direct care only users who used the Saturday FPC were age 65+ and not enrolled to TRICARE Senior Prime. The majority of beneficiaries (60%) are accessing the Saturday FPC through either the NCC or the ER. Over the course of five months, 253 patient visits (equivalent to 2.3% of ERs average monthly workload) were channeled into the Saturday FPC that might have otherwise sought care in the ER. However, non-emergent use of the ER during this same period remained relatively constant. Over 90% were assigned to a PCM, and the leading diagnoses made were for acute urinary tract infection (8.4%), otitis media (6.8%), acute pharyngitis (5.6%), unspecified viral infections (4.2%), and nonspecific dermatitis (4.2%).

These findings are encouraging because they suggest that beneficiaries are actually using the Saturday FPC for what it was designed to do (i.e., to serve as a primary care resource to meet the needs of our population and for the treatment of acute minor illnesses that are typically not serious enough to be treated in the ER). In particular, women and children are receiving same day appointments with a PCM for illnesses that would typically have them waiting for hours in the ER.

Conversely, the findings also suggest that the Saturday FPC is serving as a portal entry for non-enrollees and seniors age 65+ that either choose not to enroll or who failed to be accepted into the TSP program. As space available care becomes more difficult to obtain during the week, it is likely that beneficiaries will seek out and use the resources available to meet their demands even if it requires coming in on a Saturday to receive care.

The results of this study shed light on how the NCC functions to coordinate care for RACH's beneficiaries. From the data, it is clear that the NCC channels a fair percentage of patients (32%) to the Saturday FPC to acquire the right care at the right time in the right place.

This is important because it illustrates the role of the NCC in coordinating primary care with the Saturday FPC within the construct of the Primary Care Initiative.

The findings of this study also suggest the alternative routes of care patient's may access if the Saturday FPC did not exist. From the findings based on Enrollment Status, it is plausible that seniors age 65+ who are not enrolled to TRICARE Senior Prime would end up seeking care in the ER since it appears the ER is referring them to the Saturday FPC. Similarly, the ER would probably experience an increased number of male children age 1-10 and female adults age 17-50 seeking care for conditions likely to be managed more appropriately through a FP physician.

Finally, the Saturday FPC is providing a more appropriate means to address non-emergent care, but its direct impact on decreasing non-emergent use of the ER throughout this study was negligible. This implies that while the Saturday FPC may help avoid additional non-emergent use of the ER, it may not appreciably reduce the number of patients who inappropriately access the ER.

Recommendations

The utility of these results are that we, as an organization, can now describe what type of patient is actually using the services we have made available through the Saturday FPC. This information can be used to improve staffing issues, enhance referral processes, develop marketing strategies aimed to target specific beneficiary groups, educate our patients, and serve as a model for future applications.

Specifically, this information can assist the DPCCM with respect to physician staffing and other support services that might be required to support, for example, the 1-10 yr. age category who typically present to the Saturday FPC with acute urinary tract infection.

We are also able to understand what factors or variables impact Saturday FPC utilization, and of these which we can control and which are beyond our control. For example, we can not alter a patient's age category or diagnosis but we can impact how patients are referred. Maybe referral practices can be modified where more referrals are generated from the ER and NCC that, perhaps, target the non-emergent patient category.

Although the Zip Code variable did not demonstrate statistical significance, the descriptive information gleaned is useful because it tells us, for example, that almost 43% of our customers live in the 73505 zip code area which is Northwest of Sheridan Blvd. and Gore Blvd. Only 14% of our customers live in the Northeast section, while less than 12% live in the Southeast. Thus, if RACH was planning on conducting a health fair outside the installation it might be wise to choose an area in the Northwest part of town where a higher percentage of our beneficiaries live. This information could also be useful for future advertising and marketing initiatives. For example, when Enrollment Status was compared by Zip Code, it was found that 20 of 115 (17.4%) of the Saturday FPC users who lived on the installation were not enrolled in TRICARE. This was three times higher than the next ranking zip code external to Ft. Sill. This suggests RACH could improve enrollment if it starts marketing to the customers right in its own back yard first and then shift efforts to the external zip codes where enrollment appears to be better.

Of particular concern to the researcher were the findings concerning the 65+ age category of patients who used the Saturday FPC but were not enrolled to the TSP program. A targeted marketing effort to enroll these beneficiaries might improve RACH's demonstration program compliance, and assist seniors with obtaining better access to the M-F FPC and a primary care manager.

Educating our patients with respect to using the Saturday FPC instead of the ER for non-emergent care is critical. The ER is already assisting this process via referral, but perhaps a more focused effort could be made to reach patients before they arrive to the hospital. For example, information concerning the Saturday FPC could be included on the ER information pamphlets as an alternative source of care. Handouts could be placed in information packets as soldiers inprocess Ft. Sill. Visible banners could be displayed throughout the ER, FPC, and specialty clinics as a constant reminder. Health care articles in the post newspaper could contain a small footnote as a reminder. Finally, RACH employees should be encouraged to talk about the program to our beneficiaries through the best and most cost effective form of marketing...word of mouth.

The methodology used in this study to gather and test the data can be applied to any clinic within RACH or the Great Plains Regional Medical Command seeking to better understand its user population. For a majority of variables, the Corporate Executive Information System (CEIS) can extract information from CHCS and ADS and download the information into a usable EXCEL spreadsheet. The data from EXCEL can be transferred to SPSS where a number of different statistical analyses may be performed quickly and easily. This can provide a robust tool for the physician and hospital administrator alike who wish to more thoroughly evaluate the nature of both daily clinic business and new services such as the Saturday FPC.

Finally, and most importantly, understanding who uses our services is a first key step in designing the most appropriate and cost effective programs to maintain and improve the health of our beneficiary population. This study marks the first attempt to understand who, in fact, has been using the Saturday FPC. Further research with respect to patients' knowledge and attitudes/ perceptions of the Saturday FPC will lend clues as to why patients are using this service, or why

non-users are not using the service. Understanding the who and why together will ultimately provide the basis for which the senior leadership of RACH can make appropriate and cost effective decisions regarding the Saturday FPC now and into the future.

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